Transboundary Meeting with the
International Joint Commission
December 2, 2019
12:30pm – 4:00pm

Location TBD
Victoria, BC

PARTICIPANTS:
International Joint Commission: Pierre Béland, Jane Corwin, Henry Lickers, Merell-Ann Phare, Robert Sisson, Lance Yohe
Global Affairs Canada: Felicia Minotti, Anna Sharkova, Sylvain Fabi
EMPR: Peter Robb ADM Mines Competitiveness and Authorizations Division (MCAD), Kathy Eichenberger Executive Director Columbia River Treaty, Jennifer Anthony Director Strategic Initiatives, MCAD
IGRS: Pierrette Maranda, Sukumar Periwal, Craig Windram
ENV: Laurel Nash ADM Environmental Protection Division (EPD), Jennifer McGuire ADM Environmental Sustainability and Strategic Policy Division (ESSPD), Lisa Paquin Director of Intergovernmental Relations, ESSPD, Doug Hill Regional Director of Mining, EPD

MAH: Nicola Marotz, Strategic Advisor, Local Government Division

AGENDA:

Time	Subject Matter	Lead(s)
12:30pm-12:45pm	Welcome & Introductions	All
12:45pm-1:15pm	Background and Debrief from Alaska visit	IJC Commissioners
1:15pm-2:30pm	Overview of the Framework for the BC Transboundary Working Relationships with AK: • Existing frameworks and agreements; • Existing working groups and structures; • BC Projects; and • Key accomplishments to date.	BC
2:30pm-3:00pm	Break	
3:00pm-3:30pm	Ongoing focus and priority areas for transboundary regions	BC
3:30pm-4:00pm	Summary	BC

Date: October 25, 2019
CLIFF: 108110

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

BRIEFING NOTE FOR DECISION

PREPARED FOR: Peter Robb, Assistant Deputy Minister, Ministry of Energy, Mines and Petroleum Resources, Laurel Nash, Assistant Deputy Minister, Jennifer McGuire, Assistant Deputy Minister, Ministry of Environment and Climate Change Strategy, Pierrette Maranda, Associate Deputy Minister, Ministry of Intergovernmental Relations Secretariat

ISSUE: B.C. meeting with the International Joint Commission on Transboundary Mining

BACKGROUND:

The International Joint Commission (IJC) for both Canada and the United States (U.S.) have an invitation to meet with British Columbia (B.C.) on December 2, 2019. The IJC is a bi-national organization established by the United States (U.S.) and Canada in 1909 under the Boundary Waters Treaty (Treaty). The Treaty created the IJC to provide a mechanism to resolve and prevent disputes between Canada and the U.S. on transboundary water issues.

Since holding its first meeting in 1912, the IJC has resolved more than 100 matters raised by the U.S. and Canadian governments. Some of these have involved B.C. jurisdictions – such as the Columbia River Treaty, the Skagit River Valley and Osoyoos Lake – and others have involved other Canadian/U.S. jurisdictions – such as the St. Mary and Milk Rivers (Alberta/Saskatchewan/Montana), and the St. Lawrence River and Niagara River / Niagara Falls (Quebec/Ontario/New York).

In exercising its dispute resolution authority, the IJC studies and recommends solutions to transboundary issues when asked to do so by both federal governments. When the IJC receives a government request (called a reference), it appoints a board with equal numbers of experts from each country. Board members are chosen for their professional abilities, not as representatives of a specific organization or region. It is generally recognized that IJC referral is a last resort for governments, particularly if the matter can be resolved at the sub-national level and without recourse to legal process.

Canada and the U.S. each appoint three IJC commissioners to four-year terms. The U.S. commissioners are appointed by the President, with the advice and approval of the Senate, and the Canadian commissioners are appointed after a competitive process by the Governor in Council of Canada.

The U.S. Commissioners were appointed at the end of 2018 and the Canadian Commissioners were appointed in May 2019.

In June 2019, the eight U.S. Senators representing Alaska, Washington, Idaho and Montana, co-signed a bipartisan letter to Premier Horgan, expressing concerns about B.C. mining practices, oversight and impacts on U.S.-B.C. transboundary watersheds. The letter specifically referenced

that the IJC did not meet in the first half of the year as usual, and thus "bilateral discussions on transboundary water issues that typically occur in conjunction with the biannual convening of the IJC" did not occur. The Premier responded the following month with a letter and technical appendix outlining B.C.'s work and ongoing collaboration at the subnational level, which was supplied by the Ministry of Energy, Mines and Petroleum Resources (EMPR), the Ministry of Environment and Climate Change Strategy (ENV) and the Environmental Assessment Office (EAO).

On August 5, 2019, one Canadian and three U.S. IJC Commissioners visited Alaska on the invitation of Alaska's U.S. Senator Lisa Murkowski for a 'fact finding mission' to gather information about concerns around transboundary impacts resulting from mining activity in B.C. The Alaska meeting included a site visit, statements from Alaska State representatives, and a roundtable with stakeholders, including Alaskan Tribes representatives, and non-governmental organizations.

Prior to this meeting in Alaska, the Ministry of Energy, Mines and Petroleum Resources were working alongside s.16 to extend an invitation to the Commissioners to visit B.C.

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DISCUSSION:

Meeting with the IJC Commissioners may pose s.13
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s.13 A report back to the federal governments on specific issues has occasionally been a course of action in previous fact-finding missions s.16

It is unprecedented that B.C. would extend an invitation to the IJC for a meeting on transboundary water/mining issues. s.13
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In order to mitigate this challenge, B.C. can ensure that staff are well prepared, have supplemental and supporting materials to share with the IJC and facilitate the discussion to ensure it remains focused to B.C.'s key messages. Moreover, rules of engagement can be shared with the IJC in advance of the December meeting via s.16 to set the stage appropriately and
s.13

In the view of s.16 EMPR and ENV, the meeting with the IJC Commissioners presents an opportunity for B.C. to build goodwill and directly articulate the positive and cooperative effort taking place with Alaska at the subnational level to establish and implement frameworks, procedures and collaborative working groups, with transboundary neighbours.

Further, B.C. has an opportunity to demonstrate that the engagement and collaboration with Indigenous Nations in B.C. in the transboundary regions is strong, and that Indigenous communities are benefiting from partnerships in sustainably developed mining projects. The focus at the technical level on collaborative transboundary waters monitoring and analysis with Indigenous Nations is an important aspect to flag to the IJC. This would be in contrast to the messaging presented in Alaska by an Alaskan Tribes representative.

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Holding its own meeting with the IJC Commissioners, B.C. would reinforce that messaging.

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OPTIONS:

Option 1: ADM and limited IGRS/EMPR/ENV staff attendance at face to face December meeting with IJC and s.16

s.13; s.16

Option 2: Provide written materials to the IJC Commissioners and postpone the meeting indefinitely.

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s.13; s.16

RECOMMENDATION:

Option 1: s.13; s.16

Approved / Not Approved

_____ _____
Peter Robb, Assistant Deputy Minister Date
Ministry of Energy, Mines and Petroleum Resources

Approved / Not Approved

_____ _____
Pierrette Maranda, Associate Deputy Minister Date
Intergovernmental Relations Secretariat

Approved / Not Approved

_____ _____
Jennifer McGuire, Assistant Deputy Minister Date
Ministry of Environment and Climate Change Strategy

Approved / Not Approved

_____ _____
Laurel Nash, Assistant Deputy Minister Date
Ministry of Environment and Climate Change Strategy

DRAFTED BY:
Jennifer Anthony, EMPR
778-698-1578
Lisa Paquin, ENV
778-698-4419

APPROVED BY:

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Withheld pursuant to/removed as

s.13; s.16

Assistant Deputy Ministers' Biographies

Jennifer McGuire, Assistant Deputy Minister, Ministry of Environment and Climate Change Strategy

Since joining the provincial government in 1991, in the Prince George regional Ministry of Environment office, Jennifer has held various positions in several regions with the Environmental Protection Division including inspector, Pesticide Officer, Environmental Quality Section Head, and Regional Environmental Protection Manager. In 2007, she stepped away from Environmental Protection and moved into the land of Environmental Stewardship Division with the Ministry of Environment where she was the Lower Mainland Environmental Stewardship and Parks & Protected Areas Regional Manager responsible for fish and wildlife management, species at risk, flood hazard management, and parks management. In 2010, the provincial government created the integrated natural resources ministry – Forests, Lands and Natural Resource Operations, where she was the Director of Resource Management, South Coast.

In 2011, she returned to Environmental Protection as the Executive Director for the Regional Operations Branch (ROB). During her role as Executive Director, she led the ROB team through a restructuring of the branch to achieve alignment and nimbleness; the development of the Area Based Management Plan to address degraded water quality in the Elk Valley; and the environment response and remediation following the Mount Polley Tailings Impoundment Breach.

She is a graduate of the University of Waterloo with a Bachelor's Degree in Environmental Studies, a Professional Agrologist, and a past-President with the BC Institute of Agrologists.

Laurel Nash, Assistant Deputy Minister, Ministry of Environment and Climate Change Strategy

Laurel has worked for the BC provincial government, in the Natural Resources Sector, for over 25 years, including roles in BC Parks, the Ministries of Forests, Energy, Mines and Petroleum Resources, Indigenous Relations and Reconciliation and most recently, Environment and Climate Change Strategy. She has held senior leadership and statutory roles such as the Director of Petroleum Lands and the Chief Gold Commissioner and Chief Negotiator.

Laurel has been an Assistant Deputy Minister since 2014, first in the Strategic Initiatives Division of the Ministry of Indigenous Relations and Reconciliation, and currently as Assistant Deputy Minister of the Environmental Protection Division of Environment and Climate Change Strategies.

Laurel brings strong leadership, innovation and collaboration to this role and looks forward to working with all levels of government, Indigenous Nations, industry and other partners to find opportunities to improve our stewardship in the province.

Laurel grew up in the Northwest Territories, before coming to B.C., where she earned a Bachelor of Science in Geography from the University of Victoria. She currently lives in Victoria with her husband and two children.

Peter Robb, Assistant Deputy Minister, Ministry of Energy, Mines and Petroleum Resources

Peter Robb joined the Government of British Columbia in 2001, after several years working in the BC Treaty negotiations process as a consultant. He is a graduate of Bishops University (BComm) and the University of Northern British Columbia (BSc in Environmental Planning). He has spent his entire career working the natural resource sector with a focus on engaging and negotiating with First Nations in the forestry, mining and oil and gas sectors.

He has spent 13 years at the Ministry of Energy and Mines, along with a four-year hiatus at the Ministry of Aboriginal Relations and Reconciliation. Before taking his current role, he was the Executive Director of the new Major Mine Permitting Office. He has held numerous positions within government ranging from regional operations, permitting to negotiating major infrastructure projects.

Transboundary Meeting with the International Joint Commission

December 2, 2019

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AGENDA: Transboundary Meeting with the International Joint Commission

Monday, December 2, 2019; 12:30 PM – 4:00 PM (PST); 3:30 PM – 7:00 PM (EST)
Boardroom 4003 - 525 Capital Park
Victoria, B.C.

Attendees:

British Columbia (BC):

Ministry of Energy, Mines and Petroleum Resources:
- Peter Robb, ADM, Mines, Competitiveness and Authorizations
- Kathy Eichenberger, Executive Director, Columbia River Treaty Review Branch
- Jennifer Anthony, Director, Strategic Initiatives

Ministry of Environment and Climate Change Strategy:
- Jennifer McGuire, ADM, Environmental Sustainability and Strategic Policy
- Laurel Nash, ADM, Environmental Protection Division

Intergovernmental Relations Secretariat:
- Craig Windrim, Manager, U.S. Relations (observer)

Global Affairs Canada (GAC):

- Sylvain Fabi, Executive Director, U.S. Transboundary Affairs
- Anna Sharkova, Policy Analyst, U.S. Transboundary Affairs

International Joint Commission (IJC):

- Pierre Béland (Canada)
- Jane Corwin (U.S.)
- Merell-Ann Phare (Canada)
- Robert Sisson (U.S.)

#	*Time*	*Item*	*Lead*
1	12:30-12:45pm	Welcome and Introductions	All
2	12:45 -2:00pm	Overview of the Framework for the BC Transboundary Working Relationships with AK: • Existing frameworks and agreements; • Existing working groups and structures; • BC Projects; and • Key accomplishments to date.	BC
3	2:00-2:30pm	• Other transboundary regions: WA, MT	BC

		• BC's ongoing focus on "Mining Done Right"	
4	2:30 -3:00pm	Break	
5	3:00 -3:30pm	Background and Debrief from Alaska visit	IJC
6	3:00 -3:30pm	Summary	BC

Attachments:

1. Agenda
2. Mission and Role of the IJC
3. Boundary Waters Treaty of 1909
4. IJC Commissioner's Biographies
5. B.C.-Alaska Memorandum of Understanding and Cooperation (2015)
6. B.C.-Alaska Statement of Cooperation on the Protection of Transboundary Waters
7. Reciprocal Procedures (attachment to the Statement of Cooperation on the Protection of Transboundary Waters)
8. June 2019 BWG Summary Notes
9. B.C. Project List
10. Transboundary Waters Newsletter 2019
11. Joint Water Quality Monitoring Program for Transboundary Waters
12. Tulsequah Briefing Note
13. Alaskan Commissioner's Op-ed in the Juneau Empire
14. B.C.-Washington Environmental Cooperation Agreement (1992)
15. Memorandum of Understanding between the Washington State Department of Ecology and the British Columbia Environmental Assessment Office (2003)
16. Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy between the Province of British Columbia and the State of Montana (2010)
17. Environmental Cooperation Arrangement between the Province of British Columbia and the State of Montana (2003)
18. Letter of Commitment from ENV Deputy Minister Zacharias to Director McGrath of the Montana Department of Environmental Quality (October 10, 2019)
19. Letter of Commitment from Director McGrath of the Montana Department of Environmental Quality to ENV Deputy Minister Zacharias (October 16, 2019)
20. U.S. Senator's Letter to Premier John Horgan
21. Response to the U.S. Senators and the Technical Appendix
22. Media Release of the IJC Commissioner's August Alaska Visit
23. Senators Murkowski and Sullivan's Letter to Secretary Pompeo
24. Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report
25. Teck Summary Company Profile (Internal ENV backgrounder) (March 2019)

<table>
<tr><th colspan="3">ANNOTATED AGENDA:</th></tr>
<tr><th>#</th><th>Item</th><th>Lead</th></tr>
<tr><td>1</td><td>Welcome and Introductions</td><td>All</td></tr>
<tr><td></td><td colspan="2">The purpose of this meeting with the IJC is to build good will with the IJC Commissioners, ground truth the many examples of continued emphasis on “Mining Done Right” in B.C. and explain the success of existing cooperative relationships, agreements and structures that B.C. has in place to collectively manage transboundary issues at the subnational level.

The IJC Commissioners have indicated they are interested in hearing how B.C. is working with our transboundary partners in AK, MT and WA to improve harmonization, transparency and communications.</td></tr>
<tr><td>2</td><td>Overview of the Framework for the BC Transboundary Working Relationships with AK:
• Existing frameworks and agreements;
• Existing working groups and structures;
• BC Projects; and
• Key accomplishments to date.</td><td>Peter Robb</td></tr>
<tr><td></td><td colspan="2">BACKGROUND:
Existing frameworks and agreements
• The Memorandum of Understanding and Cooperation between the State of Alaska and the Province of B.C. (MOU) was signed in November 2015.
• A Statement of Cooperation on the Protection on Transboundary Waters (SoC) was signed by B.C. and Alaska in October 2016, to formalize and build upon the cooperative relationship between the two jurisdictions.
Existing working groups and structures
• Prior to the establishment of the SoC and MOU with Alaska, many transboundary issues were elevated to the political/federal level. Issues and concerns can now be raised through the Bilateral Working Group (BWG) for further discussion and collaborative resolution. Staff members of the working group meet on a monthly basis to resolve any outstanding items of concern, provide project updates, and action commitments stemming from the annual BWG meetings.
• The SoC establishes the BWG, the Technical Working Group on Monitoring (TWG-m), and requires the development of the Reciprocal Procedures to guide cooperation on environmental assessments and permitting between the two jurisdictions.</td></tr>
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- The Reciprocal Procedures as set out in the SoC, describe how B.C. and Alaska will collaboratively work together. A joint Reciprocal Procedure was developed and approved by the BWG that is meant to achieve the following outcomes:
  - More clearly define existing procedures used by provincial ministries to ensure active engagement by state agencies in the review and permitting of lode mines subject to British Columbia's Environmental Assessment Act (BCEAA), Mines Act (BCMA), and Environmental Management Act (BCEMA);
  - Define new procedures that will be used by state agencies to notify provincial ministries when a state permit may be required for a mine proposed in British Columbia or a mine proposed in Alaska may result in environmental impacts in British Columbia; and
  - Define new procedures for how state agencies and provincial ministries will notify each other about certain federal environmental review processes.
  - Section 4 of the Reciprocal Procedures allows for the BWG to identify projects or processes, direct appropriate actions, or develop procedures, as necessary, related to Province of British Columbia participation in Alaska's permitting processes.
- As part of that process, B.C. and Alaska have developed a master project list for all mining activities occurring in the transboundary area.
- The Communications Plan was developed for the purpose of enhancing transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the Transboundary Region, including the Alsek, Stikine, Taku and Unuk watersheds and marine waters. The Communication Plan sets out how the parties to the SoC will enhance communication with all interested parties in the region.
- The Transboundary Waters Newsletter was developed as a component of the Communication Plan. Since 2017, an annual newsletter has been published to provide the public and stakeholders with an overview of major activities within the transboundary region. The most recent issue includes the following topics: B.C.'s Environmental Assessment Update, Building Relationships and Transboundary River Monitoring (B.C. update), Water Sampling in the B.C.-AK Transboundary Watersheds (Alaska update), Transboundary Mine Updates (B.C. only), and highlights Mining-Related Events.
- The Joint Water Quality Monitoring Program for Transboundary Waters is a collaborative initiative operating under the guidance of the Technical Working Group on Monitoring. The program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, Tribes, First Nations and industry. The focus of the monitoring program is to characterize the overall health of the watersheds and monitor for impacts for mining operations and other industrial development in these transboundary waters.

- Some examples of the program's data collection efforts include:
    - cataloguing recent and historic water quality, water quantity and bioassessment data;
    - conducting a Traditional Ecological Knowledge survey;
    - implementing the Alaska Monitoring and Assessment Program; and
    - conducting supplemental water quality monitoring projects in transboundary watersheds.
    - BC will also expand its Biomonitoring Network (CABIN) protocols to measure change in biological communities to assess freshwater ecosystem health.
- An Interim Monitoring Report summarizing existing data, data gaps, and data collected will be provided to the BWG in January 2020. A final report will be prepared in 2020 summarizing all monitoring data collected.
- The most recent BWG meeting was held in June 2019, and was the first BWG meeting for the newly appointed Alaskan Commissioners. The purpose of the meeting was to introduce the Alaskan Commissioners to B.C. representatives and Executive, explain the BC-AK frameworks (MOU, SoC, BWG) and other key components of the collaborative relationship between the Province and the State. The next meeting of the BWG is scheduled for January 22, 2020.

BC Projects

- There are several major mining projects in Northwest BC that are of interest to AK, including Tulsequah, Johnny Mountain, Red Chris, KSM, Galore and Red Mountain:
    - **Tulsequah**: The Tulsequah Chief historic underground mine (Mine) is located approximately 120 kilometres south of Atlin on the Tulsequah River, in the traditional territory of the Taku River Tlingit First Nation (TRTFN). s.16

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- **Red Chris**: The Red Chris Mine is an open-pit cooper-gold mine located within the traditional territory of the Tahltan Nation. Tahltan members currently make up close to 35 percent of the Mine's workforce. The mine is 18km south of the Village of Iskut and is also near Dease Lake. In August 2019, the transaction for the sale of Red Chris Mine to Newcrest Mining Ltd was finalized. Newcrest acquired 70% ownership, and Imperial Metals will retain 30% interest in the Mine. A Five-Year Plan and Reclamation Program was received from Red Chris Development Corporation (RCDC) in June 2018, and Tahltan First Nation and the Province provided comments regarding the plan in late 2018 and early 2019. The Mine Development Review Committee (MDRC) was paused during the sale of the Mine. Following the completion of the transaction, the Province, Tahltan and Newcrest are currently planning a meeting to discuss the comments brought forth during the 5 Year Mine Plan Review.
- **KSM**: KSM Mining ULC, subsidiary of Seabridge Gold Inc., is the holder of the KSM property. The project is a proposed copper and gold open pit mining project located 65km northwest of Stewart, B.C. The project is expected to have an average ore extraction rate of approximately 130 000 tonnes per day over an anticipated 52-year mine life. The project received federal and provincial environmental approvals in 2014 and recognized KSM will not result in significant adverse effects. With an estimated 5-year construction and a 52-year mine life, the company expects to employ 1522 people during construction and provide 1407 direct jobs during mine operations. KSM Mining ULC has submitted three applications related to the Iron Cap Exploration Adit (ICEA) Project, to facilitate further exploration into the Iron Cap Deposit. This includes a *Mines Act* Notice of Work (NoW) Application, an application to amend *Environmental Management Act* (*EMA)* Effluent Permit 106814, and a Water Licence application under the *Water Sustainability Act.* The proposed ICEA Project is wholly within the larger project area of the KSM Mine Project, adjacent to the Iron Cap deposit, within the Mitchell Valley. The proposed ICEA project is currently under review, led by the Major Mines Office.
- **Galore**: Galore Creek is an open pit cooper/gold/silver project in the Thompson-Nicola Region of northwest BC, with an anticipated production

capacity of up to 60,000 tonnes per day. The expected mine life is 25 years. The Galore Creek Project received provincial and federal environmental assessment (EA) approvals and all permits required to commence construction in 2007. Galore Creek Mining Corporation (GCMC) started construction activities within the M-230 permit area (Galore Valley) in 2007. A limited amount of mine site infrastructure development including roadwork, tunnel construction staging area, and expansion of the existing camp was initiated before the Project was halted in late 2007. The Project remains on care and maintenance.

- **Red Mountain**: The Red Mountain project is 15 km northeast of Stewart, B.C. and anticipates producing approximately 1000 tonnes of mineral ore per day or 365,000 tonnes per year, over an operational mine life of six years. The project received their EAC on October 5, 2018 and their approval from CEAA on January 14, 2019. The Major Mines Office waiting on IDM/Ascot to confirm permitting timelines. To date, we do not have any new information regarding a timeframe for when this information will be provided.

Key accomplishments to date

- Through the MOU and SoC, B.C. and Alaska have collaborated to develop a number of initiatives including:
  - Establishing the BWG and the TWG-m.
  - Developing reciprocal procedures that ensure Alaska has an opportunity to provide input into B.C.'s regulatory processes and decisions, as well as providing the U.S. EPA and local interest groups in the U.S. a channel through Alaska to engage with B.C.
  - Alaska has provided input on several of B.C.'s regulatory activities (e.g. *Mines Act* amendments, B.C.'s reclamation policy, and remediation plan for Tulsequah).
  - Development of a master project list of all mining activities (from early exploration to major projects) occurring in the transboundary area.
  - Development of a Communications Plan to enhance transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the transboundary region. This includes a transboundary website that is accessible to the public.
  - Establishing the Joint Water Quality Monitoring Program for Transboundary Waters as a collaborative initiative operating under the guidance of the TWG-m. This program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, U.S. Tribes, Indigenous Nations and industry.

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- B.C.'s goal is to continue to build upon the momentum of these efforts to ensure continued protection and oversight within the transboundary waters region.

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s.16 Alaska has been invited and accepted to join technical working groups regarding the clean-up of the mine.

BC MESSAGES:

- The existing structures in place have proven highly effective and successful in focusing the dialogue between Alaska and B.C. on key issues such as water quality in the transboundary region, and remediation efforts at the Tulsequah Chief Mine;
- The members who participate at these tables and forums, who have a vested interest in seeing issues resolved are supportive of the mechanisms in place and see no need for federal intervention, and are supportive of existing frameworks; this same message is being expressed by B.C.
- The Alaskan Commissioners Fiege, Brune and Vincent-Lang expressed this support and opinion clearly in a June 2019 Op-Ed in the Juneau Empire regarding their commitment to maintaining both high water quality standards and responsible mineral development in the transboundary waters between Southeast Alaska and B.C. The article referenced the collaborative relationship the State and Province have fostered through the establishment of the MOU and SoC. s.16

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- NGO's who have been invited to engage at a deeper level on Tulsequah have stated that a federally led IJC process would be a "complicating factor" on Tulsequah where significant work is collectively underway;
- s.16

s.16 These opinions are being freely expressed by those who are engaged in the transboundary discussions with B.C.; and present a more fulsome view of the work underway than is currently being captured by the press and Senators.

3	• Other transboundary regions: WA, MT • BC's ongoing focus on "Mining Done Right"	Jennifer McGuire Peter Robb
	BACKGROUND:	

Other transboundary regions: Washington

- BC and Washington State have enjoyed a collaborative working relationship since the creation of the Environmental Cooperation Agreement in 1992. The Environmental Cooperation Agreement and the Environmental Cooperation Council have a successful history of promoting and coordinating mutual efforts to ensure the protection, preservation and enhancement of our shared environment for the benefit of current and future generations.
- The Agreement has proven to be very effective model and was recently renewed in 2018. Over the years cooperative efforts have focused on:
    - water quality;
    - water resource management;
    - regional air quality;
    - solid hazardous waste;
    - wetlands protection; and
    - coastal and ocean management.
- In June 2001, the Washington Department of Ecology and the B.C. Ministry of Environment and Climate Change Strategy entered into a Memorandum of Understanding regarding Environmental Assessments. Under this MoU the state and province make every effort to share information, consult with one another, and coordinate their work on environmental issues that have the potential to affect resources and residents in the border region. In keeping with these agreements, provincial and state regional offices are included in the distribution of environmental assessment notifications for major projects located within 100km or less from the border between the two jurisdictions.

<u>Nookack River Watershed Project</u>

- Shellfish beds located on the mouth of the Nooksack River have experienced prolonged harvesting closures for over two decades due to fecal bacteria contaminated waters. The Nooksack River watershed has seen an overall decline in water quality and ecosystem health due to urban and agricultural development in the watershed.
- Bertrand Creek and the Fishtrap Creek are two large sub-basins of the lower Nooksack River watershed that straddle the international boundary. Both Bertrand Creek and Fishtrap Creek watersheds are located about half in BC, Canada (Aldergrove and Abbotsford area) and half in Washington (WA), USA.
- In December 2016, representatives from Canada and the US, along with local stakeholders, formed a Water Quality Task Group to understand the source of water quality concerns and establish a direction to improve watershed health.

- As an outcome of the WQTG, the Nooksack River Transboundary Technical Collaboration Group (TCG) was established in August of 2018 to implement a three-year work plan to:
  - Reduce fecal coliform bacteria contamination at transboundary stream locations of the Nooksack Watershed.
  - Maintain communication at the operational level among TCG members.
  - Facilitate communication at the management level among TCG members.
  - Design and implement BC/WA joint actions described in the TCG's three-year transboundary work plan (Work Plan).
  - Exchange updates related to jurisdiction-specific actions in the work plan.
- Through the TCG this allows BC and WA to harmonize our monitoring and respond and follow-up, in a timely manner, on any issues in the watershed. This relationship has resulted in improved water quality crossing the border.
- In 2019, due to water quality improvement, the spring harvest season was re-opened in the Conditionally Approved portion of the growing area. While harvest in the Conditionally Approved area is now allowed January through September, the area remains closed to harvest from October-December each year due to fall season elevated concentrations of fecal coliform bacteria in the marine water.
- The project has entered its second year of implementation and will end August of 2021.

<u>Imperial Metals</u>

- The Imperial Metals application for a Mines Act permit in the Silverdaisy area is still under review. The Statutory Decision Maker is continuing to conduct a thorough and comprehensive review of the application based on input from numerous parties and Indigenous nations. A decision is expected to be made early in the new year.

Other transboundary regions: Montana

- The foundation of BC and Montana's collaboration on regional ecosystems and shared protection of transboundary waters is captured in the 2003 Environmental Cooperation Arrangement and underpinned by the Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy, which also provides for reciprocal opportunities for Montana to participate in BC's environmental assessment process.
- In recent years BC and Montana have focused on assessing and managing transboundary impacts from mines in the Elk Valley through the Lake Koocanusa Research and Monitoring Working Group.

- The working group is a cross-border forum through which site-specific criteria and water quality guidelines for the Koocanusa Reservoir are discussed and recommended. It has established common resources for open sharing of data and information by our two jurisdictions. It includes representatives from US federal and state agencies, First Nations and US Tribes, stakeholders, industry, non-governmental organizations and experts.
- The working group is currently focused on finalizing draft water quality objectives/criteria for selenium in Koocanusa Reservoir, targeting completion by 2020. Additional objectives and criteria for other substances could also be developed in the future.
- In the fall of 2019 the Deputy Minister of Environment and Climate Change Strategy and Director of Montana's Department of Environmental Quality exchanged letters of commitment which confirm our shared goal of aligning selenium water quality objectives and criteria for the Koocanusa Reservoir in 2020; and established a new commitment to jointly develop annual work plans moving forward. The joint work plans will identify shared priorities and the steps needed to achieve those goals on an annual basis, starting with 2020's focus on adopting aligned selenium water quality objectives and criteria.
    - The 2020 work plan is currently being finalized.
    - B.C. intends to provide the Ktunaxa Nation Council opportunities to review and provide input before the work plan is adopted.
- Participation and support from First Nations is very important to BC. Working closely with Montana we have recently expanded the role of representatives from First Nations and US Tribes on a key technical sub-committee of the working group. BC is also in discussions with the Ktunaxa Nation Council to explore pathways for collaborative development of BC's water quality objective that will be adopted in the BC portion of Koocanusa Reservoir.
- In November, 2019 BC and Montana collaborated to host the annual face to face meeting of the Lake Koocanusa Monitoring and Research Working Group in Whitefish, Montana. Alongside the working group meetings, two public panels were held in Libby and Eureka to provide the public opportunities to ask questions from ministry, industry and non-governmental representatives about the working group, the activities underway in the Elk Valley, and the work underway to monitor and assess potential impacts on US citizens and resources.

BC's ongoing focus on "Mining Done Right"

- On June 13, 2019, a week before the June 18 BWG meeting, 8 Senators from B.C.'s neighboring states wrote to Premier John Horgan (PJH) regarding the work

in congress the Senators have undertaken to "dedicate attention and resources to concerns regarding U.S.-B.C. transboundary watersheds".

- BC staff from EMPR, ENV, and IGRS worked collaboratively to provide a comprehensive response to the Senator's letter. The response included a letter from PJH, as well as a technical appendix which went into further detail on the topics mentioned in the letter.
- Topics included in the letter exemplify BC's commitments and ongoing focus on "Mining Done Right".
    - The Province has given significant attention, engagement and resources to implement legislative and regulatory changes to strengthen industry safety and oversight. These efforts were most recently emphasized in B.C.'s Budget 2019, in which $20 million of new funding was allocated towards mining oversight. Prior to Budget 2019, the requirements for tailings storage facilities were significantly strengthened, including the requirement for an Independent Tailings Review Board; as well as mandating that all new mines follow modernized and increased safety requirements. All mines in B.C. must also adhere to stringent requirements for tailings storage facilities.
    - The currently proposed *Mines Act* amendments will support and formalize recent organizational changes and enhance compliance and enforcement provisions.
    - Budget 2019 enabled EMPR to separate its regulatory authorities with the creation of a new Mines Health, Safety and Enforcement Division, distinct from the Mines Competitiveness and Authorizations Division. Budget 2019 also announced a new Mine Audits and Effectiveness Monitoring Unit (Audit Unit) as an oversight unit separate and independent from EMPR's other regulatory functions.
    - The proposed *Mines Act* amendments will reflect the new two-division structure, separate decision making for permits away from health, safety and enforcement, and provide the Audit Unit with the authority it needs to fulfil its oversight mandate.
    - The proposed *Mines Act* amendments will also:
        - Strengthen compliance and enforcement provisions – for example by strengthening the ministry's the ability investigate incidents on mine sites and take action to respond to dangers to health and safety or the environment, and
        - Strengthen government's ability to ensure that reclamation and other environmental obligations are met including during insolvency proceedings.

- B.C. has strengthened the *Environmental Management Act*, which enables us to recover costs of environmental clean-up directly from the spiller or polluter; clarifies requirements for restoration; and increases penalties for incomplete restoration. Additionally, a new *Environmental Assessment Act* is being implemented in the fall of 2019. The new *Act* includes a number of changes to enhance public confidence, advance reconciliation with First Nations and protect the environment while offering clear pathways to sustainable project approvals. Among the changes are new tools to enhance compliance and enforcement, including administrative monetary penalties of up to $750,000. In addition, ENV EMPR, and the Environmental Assessment Office have a Mining Compliance and Enforcement Strategic Plan that outlines B.C.'s vision for achieving enhanced protection of the environment, human health and public safety through an integrated risk-based approach to mining oversight. The Strategic Plan also formalizes the integration and coordination of the three agencies' mining compliance and enforcement policies and in 2018 they published a joint "Risk Management Framework for Mining in BC", formalizing how the agencies practices risk management for mining both independently and collectively.

- As part of our commitment to true and lasting reconciliation with Indigenous Peoples in British Columbia, B.C. has recently tabled draft legislation, *Declaration on Rights of Indigenous People Act,* that supports the full adoption and implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Calls to Action. B.C is the first provincial jurisdiction to pass legislation (unanimously on Nov 26/19) to implement the UN Declaration, which will form the foundation for the Province's work towards reconciliation in B.C. Strengthening relationships with Indigenous Nations and leveraging Indigenous knowledge and perspectives improves social and economic outcomes for Indigenous Peoples and all British Columbians.
- Beyond our internal efforts to increase mining oversight, strengthen regulatory tools and decision-making processes, and deepen engagement with Indigenous Peoples, B.C. is committed to ongoing collaboration, information sharing, engagement and joint-monitoring with our partners in the United States. This collaboration takes place through a number of shared forums and joint working groups that have been established through the bilateral agreements and Memorandum of Cooperation B.C. has signed with Alaska, Washington, and Montana.
- Beyond these collaborative government efforts, the mining industry within Canada has taken key steps towards greater compliance and regulation through initiatives such as Towards Sustainable Mining (TSM) which is a performance

system that mining companies use to evaluate and manage their environmental and social responsibilities. The TSM was established by the Mining Association of Canada (MAC) in 2004 and helps ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. Since 2004, various mining jurisdictions around the world have adopted TSM for their members, and TSM participation is mandatory for MAC members.

Trail Operations Facility (Lead-Zinc Smelter) in Trail, B.C.

- Teck Metals Ltd. operates a lead-zinc smelter in the community of Trail, B.C. referred to as the Trail Operations Facility.
- The smelter in Trail that has been in operation for over 100 years and waste discharges from it have resulted in metal contamination on properties within the city as well as in the Lower Columbia River Valley from Castlegar to the US Border (the "Environmental Management Area").
    - Approximately 12 million tonnes of slag discharged into the Lower Columbia River between 1929 and 1995
    - The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy
    - Slag material in pools is mobile and continues to be transported downstream
    - Of the 12 million tonnes of discharged slag, 10% is estimated to remain in Canada
- Teck Metals Ltd.'s discharge of slag ceased in 1995. The company has in place waste water treatment plants and retention reservoirs to capture and treat groundwater and discharged water before it is released back into the Columbia River.
- The Confederated Tribes of the Colville Reservation in the United States have taken legal action against Teck in U.S. courts for many years to hold the company liable for the slag pollution. In 2019 the US Supreme Court ordered Teck to reimburse the CTCR nearly $8.6M U.S. to cover the Tribes costs of investigating the river's pollution and for attorney fees/costs in taking the matter to court.
- 2007 and 2010 studies commissioned by the Ministry of Environment and Climate Change Strategy (ENV), BC Hydro, the Columbia River Integrated Environmental Monitoring Program (CRIEMP) and the CTCR identified a number of key facts regarding flow conditions and the presence of slag in the Columbia River including:
    - Total discharge of slag from Teck's smelter between 1929 and 1995 is estimated to be approximately 12 million tonnes.

    - There is an estimated 10% of the total slag discharged remaining in Canada.
    - The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy.
- The focus of recent investigations in Canada has been in an area slightly downstream of Waneta Eddy, in an important white sturgeon spawning area.
- During 2018 field work, BC Hydro did not observe any slag in the spawning area.
- ENV is also involved in reviewing remediation activities associated with surface water and groundwater discharges to the Columbia River from the Teck, Trail Operations site. This includes:
    - A Groundwater Pump and Treatment system to prevent the discharge of a large ammonium sulphate and metal plume into the river and below the community of East Trail. The first phase of the Groundwater Treatment Plant was completed in 2016 (extracting 3,500 m3/day). A second phase is currently underway.
    - Investigations and interim mitigation measures to reduce metals discharges into Stoney Creek and downstream to the Columbia River.
    - Assessment of slag deposits in the Columbia River Area Adjacent to Downtown Trail for aquatic ecological risks and to determine what remedial actions may be required.

BC MESSAGES:

If asked about BC-MT MOU

- Our government is committed to improving water quality in Lake Koocanusa by working with our partners across borders to establish science-based water quality objectives for selenium in 2020.
- Working collaboratively with Montana remains a priority for the Province and we continue to support the work of the Lake Koocanusa Monitoring and Research Working Group.
- B.C. is committed to working closely with government partners, Indigenous nations, industry and NGOs to make sure we are protecting ecosystem health in Lake Koocanusa for the future.
- B.C. and Montana have been working together to formalize our commitment to protect ecosystem health in Lake Koocanusa and align water quality objectives for selenium in 2020.

s.16

	s.16 • In lieu of an MOU, BC and Montana are committed to developing an annual work plan and working together through the Lake Koocanusa Monitoring and Research Working Group to develop water quality objectives for selenium.	
4	Break	All
5	Background and Debrief from Alaska visit	IJC Commissioners
	BACKGROUND: *Background and Debrief from Alaska visit* • At the invitation of Senator Murkowski, three US IJC Commissioners, and the Canadian Chair, Pierre Béland, visited Alaska from August 3-5 2019. The visit to Alaska was referred to as a "fact finding mission" for the IJC Commissioners. • A transboundary roundtable discussion occurred on the last day of the Commissioners visit, and focused on Southeast Alaska's transboundary issues. Senator Murkowski and Senator Sullivan were in attendance, along with Alaskan Commissioners Brune and Fiege. Local officials, and tribal/industry/fishing stakeholders were also in attendance. • s.16 • • On October 22, 2019, Senators Murkowski and Sullivan wrote to Secretary of State Pompeo regarding their concern about the "lack of oversight of Canadian mining projects near multiple transboundary rivers that originate in B.C. and flow into four U.S. states, Alaska, Washington, Idaho, and Montana". The Senators outline how they have addressed the concerns to date, and state that they hope to encourage Secretary Pompeo, "to allocate similar attention, engagement, and resources to collaborative management of our shared transboundary watersheds with Minister Freeland." • The letter references the IJC's visit to Alaska and the focus of the August 5 transboundary roundtable discussion.	

	BC MESSAGES: • B.C. continues to focus efforts where it is most important, which is with our transboundary neighbors to ensure that mining concerns and issues are identified and addressed as they arise. • Those who are closest to the dialogue for the transboundary region recognize that cooperative and collaborative efforts continue to move the dial on some challenging issues, both historic and more modern within the transboundary regions. • s.16

6	Summary	Peter Robb
	BC MESSAGES: • Historically, prior to States and Provinces existing or establishing formal relationships, the Boundary Waters Treaty was a key component of successfully protecting transboundary waters. • s.16 • B.C. believes we have a positive and solid working relationship with our state partners, and we are not a candidate for a reference to an IJC led process as B.C. continues to demonstrate innovation, collaboration and a willingness to tackle transboundary waters issues as they arise. Over the last 5 years B.C. has made significant strides in modernizing mining oversight not just within transboundary regions but across the sector as a whole. • B.C. has taken and will continue to take pride in the strong relationships we have formed with our transboundary neighbors.	

Mission and Role of the International Joint Commission

Mission Statement:

The International Joint Commission prevents and resolves disputes between the United States of America and Canada under the 1909 Boundary Waters Treaty and pursues the common good of both countries as an independent and objective advisor to the two governments.

In particular, the IJC rules upon applications for approval of projects affecting transboundary waters and may regulate the operation of these projects; it assists the two countries in the protection of the transboundary environment, including the implementation of the Great Lakes Water Quality Agreement and the improvement of transboundary air quality; and it alerts the government to emerging issues along the boundary that may give rise to bilateral disputes.

Role of the IJC:

The IJC is guided by the Boundary Waters Treaty, signed by Canada and the United States in 1909. The treaty provides general principles, rather than detailed prescriptions, for preventing and resolving disputes over waters shared between the two countries and for settling other transboundary issues. The specific application of these principles is decided on a case-by-case basis.

The IJC has two main responsibilities: approving projects that affect water levels and flows across the boundary and investigating transboundary issues and recommending solutions. The IJC's recommendations and decisions take into account the needs of a wide range of water uses, including drinking water, commercial shipping, hydroelectric power generation, agriculture, ecosystem health, industry, fishing, recreational boating and shoreline property.

Treaty Between the United Kingdom and the United States of America Concerning Boundary Waters and Questions Arising Along the Boundary Between Canada and the USA

E100420

His Majesty the King of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, Emperor of India, and the United States of America, being equally desirous to prevent disputes regarding the use of boundary waters and to settle all questions which are now pending between the United States and the Dominion of Canada involving the rights, obligations, or interests of either in relation to the other or to the inhabitants of the other, along their common frontier, and to make provision for the adjustment and settlement of all such questions as may hereafter arise, have resolved to conclude a treaty in furtherance of these ends, and for that purpose have appointed as their respective plenipotentiaries:

His Britannic Majesty; the Right Honorable James Bryce, O.M., his Ambassador Extraordinary and Plenipotentiary at Washington; and

The President of the United States of America, Elihu Root, Secretary of State of the United States;

Who, after having communicated to one another their full powers, found in good and due form, have agreed upon the following articles:

Preliminary Article

For the purposes of this treaty boundary waters are defined as the waters from main shore to main shore of the lakes and rivers and connecting waterways, or the portions thereof, along which the international boundary between the United States and the Dominion of Canada passes, including all bays, arms, and inlets thereof, but not including tributary waters which in their natural channels would flow into such lakes, rivers, and waterways, or waters flowing from such lakes, rivers, and waterways, or the waters of rivers flowing across the boundary.

Article I

The High Contracting Parties agree that the navigation of all navigable boundary waters shall forever continue free and open for the purposes of commerce to the inhabitants and to the ships, vessels, and boats of both countries equally, subject, however, to any laws and regulations of either country, within its own territory, not inconsistent with such privilege of free navigation and applying equally and without discrimination to the inhabitants, ships, vessels, and boats of both countries.

It is further agreed that so long as this treaty shall remain in force, this same right of navigation shall extend to the waters of Lake Michigan and to all canals connecting boundary waters, and now existing or which may hereafter be constructed on either side of the line. Either of the High Contracting Parties may adopt rules and regulations governing the use of such canals within its own territory and may charge tolls for the use thereof, but all such rules and regulations and all tolls charged shall apply alike to the subjects or citizens of the High Contracting Parties and the ships, vessels, and boats of both of the High Contracting Parties, and they shall be placed on terms of equality in the use thereof.

Article II

Each of the High Contracting Parties reserves to itself or to the several State Governments on the one side and the Dominion or Provincial Governments on the other as the case may be, subject to any treaty provisions now existing with respect thereto, the exclusive jurisdiction and control over the use and diversion, whether temporary or permanent, of all waters on its own side of the line which in their natural channels would flow across the boundary or into boundary waters; but it is agreed that any interference with or diversion from their natural channel of such waters on either side of the boundary, resulting in any injury on the other side of the boundary, shall give rise to the same rights and entitle the injured parties to the same legal remedies as if such injury took place in the country where such diversion or interference occurs; but this provision shall not apply to cases already existing or to cases expressly covered by special agreement between the parties hereto.

It is understood, however, that neither of the High Contracting parties intends by the foregoing provision to surrender any right, which it may have, to object to any interference with or diversions of waters on the other side of the boundary the effect of which would be productive of material injury to the navigation interests on its own side of the boundary.

Article III

It is agreed that, in addition to the uses, obstructions, and diversions heretofore permitted or hereafter provided for by special agreement between the Parties hereto, no further or other uses or obstructions or diversions, whether temporary or permanent, of boundary waters on either side of the line, affecting the natural level or flow of boundary waters on the other side of the line, shall be made except by authority of the United States or the Dominion of Canada within their respective jurisdictions and with the approval, as hereinafter provided, of a joint commission, to be known as the International Joint Commission.

The foregoing provisions are not intended to limit or interfere with the existing rights of the Government of the United States on the one side and the Government of the Dominion of Canada on the other, to undertake and carry on governmental works in boundary waters for the deepening of channels, the construction of breakwaters, the improvement of harbours, and other governmental works for the benefit of commerce and navigation, provided that such works are wholly on its own side of the line and do not materially affect the level or flow of the boundary waters on the other, nor are such provisions intended to interfere with the ordinary use of such waters for domestic and sanitary purposes.

Article IV

The High Contracting Parties agree that, except in cases provided for by special agreement between them, they will not permit the construction or maintenance on their respective sides of the boundary of any remedial or protective works or any dams or other obstructions in waters flowing from boundary waters or in waters at a lower level than the boundary in rivers flowing across the boundary, the effect of which is to raise the natural level of waters on the other side of the boundary unless the construction or maintenance thereof is approved by the aforesaid International Joint Commission.

It is further agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other.

Article V

The High Contracting Parties agree that it is expedient to limit the diversion of waters from the Niagara River so that the level of Lake Erie and the flow of the stream shall not be appreciably affected. It is the desire of both Parties to accomplish this object with the least possible injury to investments which have already been made in the construction of power plants on the United States side of the river under grants of authority from the State of New York, and on the Canadian side of the river under licences authorized by the Dominion of Canada and the Province of Ontario.

So long as this treaty shall remain in force, no diversion of the waters of the Niagara River above the Falls from the natural course and stream thereof shall be permitted except for the purposes and to the extent hereinafter provided.

The United States may authorize and permit the diversion within the State of New York of the waters of said river above the Falls of Niagara, for power purposes, not exceeding in the aggregate a daily diversion at the rate of twenty thousand cubic feet of water per second.

The United Kingdom, by the Dominion of Canada, or the Province of Ontario, may authorize and permit the diversion within the Province of Ontario of the waters of said river above the Falls of Niagara, for power purposes, not exceeding in the aggregate a daily diversion at the rate of thirty-six thousand cubic feet of water per second.

The prohibitions of this article shall not apply to the diversion of water for sanitary or domestic purposes, or for the service of canals for the purposes of navigation.

Note: The third, fourth and fifth paragraphs of Article V were terminated by the Canada-United States Treaty of February 27, 1950 concerning the diversion of the Niagara River.

Article VI

The High Contracting Parties agree that the St. Mary and Milk Rivers and their tributaries (in the State of Montana and the Provinces of Alberta and Saskatchewan) are to be treated as one stream for the purposes of irrigation and power, and the waters thereof shall be apportioned equally between the two countries, but in making such equal apportionment more than half may be taken from one river and less than half from the other by either country so as to afford a more beneficial use to each. It is further agreed that in the division of such waters during the irrigation season, between the 1st of April and 31st of October, inclusive, annually, the United States is entitled to a prior appropriation of 500 cubic feet per second of the waters of the Milk River, or so much of such amount as constitutes three-fourths of its natural flow, and that Canada is entitled to a prior appropriation of 500 cubic feet per second of the flow of St. Mary River, or so much of such amount as constitutes three-fourths of its natural flow.

The channel of the Milk River in Canada may be used at the convenience of the United States for the conveyance, while passing through Canadian territory, of waters diverted from the St. Mary River. The provisions of Article II of this treaty shall apply to any injury resulting to property in Canada from the conveyance of such waters through the Milk River.

The measurement and apportionment of the water to be used by each country shall from time to time be made jointly by the properly constituted reclamation officers of the United States and the properly constituted irrigation officers of His Majesty under the direction of the International Joint Commission.

Article VII

The High Contracting Parties agree to establish and maintain an International Joint Commission of the United States and Canada composed of six commissioners, three on the part of the United States appointed by the President thereof, and three on the part of the United Kingdom appointed by His Majesty on the recommendation of the Governor in Council of the Dominion of Canada.

Article VIII

This International Joint Commission shall have jurisdiction over and shall pass upon all cases involving the use or obstruction or diversion of the waters with respect to which under Articles III and IV of this Treaty the approval of this Commission is required, and in passing upon such cases the Commission shall be governed by the following rules or principles which are adopted by the High Contracting Parties for this purpose:

The High Contracting Parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

The following order of precedence shall be observed among the various uses enumerated hereinafter for these waters, and no use shall be permitted which tends materially to conflict with or restrain any other use which is given preference over it in this order of precedence:

1. Uses for domestic and sanitary purposes;
2. Uses for navigation, including the service of canals for the purposes of navigation;
3. Uses for power and for irrigation purposes.

The foregoing provisions shall not apply to or disturb any existing uses of boundary waters on either side of the boundary.

The requirement for an equal division may in the discretion of the Commission be suspended in cases of temporary diversions along boundary waters at points where such equal division can not be made advantageously on account of local conditions, and where such diversion does not diminish elsewhere the amount available for use on the other side.

The Commission in its discretion may make its approval in any case conditional upon the construction of remedial or protective works to compensate so far as possible for the particular use or diversion proposed, and in such cases may require that suitable and adequate provision, approved by the Commission, be made for the protection and indemnity against injury of any interests on either side of the boundary.

In cases involving the elevation of the natural level of waters on either side of the line as a result of the construction or maintenance on the other side of remedial or protective works or dams or other obstructions in boundary waters or in waters flowing therefrom or in waters below the boundary in rivers flowing across the boundary, the Commission shall require, as a condition of its approval thereof, that suitable and adequate provision, approved by it, be made for the protection and indemnity of all interests on the other side of the line which may be injured thereby.

The majority of the Commissioners shall have power to render a decision. In case the Commission is evenly divided upon any question or matter presented to it for decision, separate reports shall be made by the Commissioners on each side to their own Government. The High Contracting Parties shall thereupon endeavour to agree upon an adjustment of the question or matter of difference, and if an agreement is reached between them, it shall be reduced to writing in the form of a Protocol, and shall be communicated to the Commissioners, who shall take such further proceedings as may be necessary to carry out such agreement.

Article IX

The High Contracting Parties further agree that any other questions or matters of difference arising between them involving the rights, obligations, or interests of either in relation to the other or to the inhabitants of the other, along the common frontier between the United States and the Dominion of Canada, shall be referred from time to time to the International Joint Commission for examination and report, whenever either the Government of the United States or the Government of the Dominion of Canada shall request that such questions or matters of difference be so referred.

The International Joint Commission is authorized in each case so referred to examine into and report upon the facts and circumstances of the particular questions and matters referred, together with such conclusions and recommendations as may be appropriate, subject, however, to any restrictions or exceptions which may be imposed with respect thereto by the terms of the reference.

Such reports of the Commission shall not be regarded as decisions of the questions or matters so submitted either on the facts or the law, and shall in no way have the character of an arbitral award.

The Commission shall make a joint report to both Governments in all cases in which all or a majority of the Commissioners agree, and in case of disagreement the minority may make a joint report to both Governments, or separate reports to their respective Governments.

In case the Commission is evenly divided upon any question or matter referred to it for report, separate reports shall be made by the Commissioners on each side to their own Government.

Article X

Any questions or matters of difference arising between the High Contracting Parties involving the rights, obligations, or interests of the United States or of the Dominion of Canada either in relation to each other or to their respective inhabitants, may be referred for decision to the International Joint Commission by the consent of the two Parties, it being understood that on the part of the United States any such action will be by and with the advice and consent of the Senate, and on the part of His Majesty's Government with the consent of the Governor General in Council. In each case so referred, the said Commission is authorized to examine into and report upon the facts and circumstances of the particular questions any matters referred, together with such conclusions and recommendations as may be appropriate, subject, however, to any restrictions or exceptions which may be imposed with respect thereto by the terms of the reference.

A majority of the said Commission shall have power to render a decision or finding upon any of the questions or matters so referred.

If the said Commission is equally divided or otherwise unable to render a decision or finding as to any questions or matters so referred, it shall be the duty of the Commissioners to make a joint report to both Governments, or separate reports to their respective Governments, showing the different conclusions arrived at with regard to the matters or questions so referred, which questions or matters shall thereupon be referred for decision by the High Contracting Parties to an umpire chosen in accordance with the procedure prescribed in the fourth, fifth, and sixth paragraphs of Article XLV of the Hague Convention for the pacific settlement of international disputes, dated October 18, 1907. Such umpire shall have power to render a final decision with respect to those matters and questions so referred on which the Commission failed to agree.

Article XI

A duplicate original of all decisions rendered and joint reports made by the Commission shall be transmitted to and filed with the Secretary of State of the United States and the Governor General of the Dominion of Canada, and to them shall be addressed all communications of the Commission.

Article XII

The International Joint Commission shall meet and organize at Washington promptly after the members thereof are appointed, and when organized the Commission may fix such times and places for its meetings as may be necessary, subject at all times to special call or direction by the two Governments. Each Commissioner upon the first joint meeting of the Commission after his appointment, shall, before proceeding with the work of the Commission, make and subscribe a solemn declaration in writing that he will faithfully and impartially perform the duties imposed upon him under this treaty, and such declaration shall be entered on the records of the proceedings of the Commission.

The United States and Canadian sections of the Commission may each appoint a secretary, and these shall act as joint secretaries of the Commission at its joint sessions, and the Commission may employ engineers and clerical assistants from time to time as it may deem advisable. The salaries and personal expenses of the Commission and of the secretaries shall be paid by their respective Governments, and all reasonable and necessary joint expenses of the Commission, incurred by it, shall be paid in equal moieties by the High Contracting Parties.

The Commission shall have power to administer oaths to witnesses, and to take evidence on oath whenever deemed necessary in any proceeding, or inquiry, or matter within its jurisdiction under this treaty, and all parties interested therein shall be given convenient opportunity to be heard, and the High Contracting Parties agree to adopt such legislation as may be appropriate and necessary to give the Commission the powers above mentioned on each side of the boundary, and to provide for the issue of subpoenas and for compelling the attendance of witnesses in proceedings before the Commission. The Commission may adopt such rules of procedure as shall be in accordance with justice and equity, and may make such examination in person and through agents or employees as may be deemed advisable.

Article XIII

In all cases where special agreements between the High Contracting Parties hereto are referred to in the foregoing articles, such agreements are understood and intended to include not only direct agreements between the High Contracting Parties, but also any mutual arrangement between the United States and the Dominion of Canada expressed by concurrent or reciprocal legislation on the part of Congress and the Parliament of the Dominion.

Article XIV

The present treaty shall be ratified by the President of the United States of America, by and with the advice and consent of the Senate thereof, and by His Britannic Majesty. The ratifications shall be exchanged at Washington as soon as possible and the Treaty shall take effect on the date of the exchange of its ratifications. It shall remain in force for five years, dating from the day of exchange of ratifications, and thereafter until terminated by twelve months' written notice given by either High Contracting Party to the other.

IN FAITH WHEREOF the respective plenipotentiaries have signed this treaty in duplicate and have hereunto affixed their seals.

DONE at Washington the 11th day of January, in the year of our Lord one thousand nine hundred and nine.

James Bryce

Elihu Root

PROTOCOL OF EXCHANGE

On proceeding to the exchange of the ratifications of the treaty signed at Washington on January 11, 1909, between the United States and Great Britain, relating to boundary waters and questions arising along the boundary between the United States and the Dominion of Canada, the undersigned plenipotentiaries, duly authorized thereto by their respective Governments, hereby declare that nothing in this treaty shall be construed as affecting, or changing, any existing territorial, or riparian rights in the water, or rights of the owners of lands under water, on either side of the international boundary at the rapids of the St. Mary's River at Sault Ste. Marie, in the use of the waters flowing over such lands, subject to the requirements of navigation in boundary waters and of navigation canals, and without prejudice to the existing right of the United States and Canada, each to use the waters of the St. Mary's River, within its own territory; and further, that nothing in this treaty shall be construed to interfere with the drainage of wet, swamp, and overflowed lands into streams flowing into boundary waters, and also that this declaration shall be deemed to have equal force and effect as the treaty itself and to form an integral part thereto.

The exchange of ratifications then took place in the usual form.

IN WITNESS WHEREOF, they have signed the present Protocol of Exchange and have affixed their seals thereto.

DONE at Washington this 5th day of May, one thousand nine hundred and ten.

BIOGRAPHIES

Pierre BÉLAND, Canadian Commissioner, Chair

- Pierre Béland is a scientist in environmental biology and toxicology, best known as an expert on the conservation of beluga whales. He was a founder and research scientist with the St. Lawrence National Institute of Ecotoxicology, an NGO dedicated to research and education on toxic compounds in estuarine ecosystems.
- Dr. Béland has published three books, numerous scientific and popular articles, has hosted a TV series on the environment, and participated in several documentary films. He served for ten years as a Commissioner for BAPE, the Quebec environmental assessment Board. He has chaired public hearings for various agencies such as Parks Canada, Fisheries and Oceans Canada, Quebec Energy Efficiency Agency, Telus. Previously he headed the Fisheries Ecology Research Center with the Department of Fisheries and Oceans Canada, and was a paleoecologist with the National Museum of Nature. From Sept 1995 to Sept 1998, Dr. Béland was one of three Canadian Commissioners (and Acting Chair) with the International Joint Commission.
- Until recently he owned and managed a company manufacturing equipment for research and management of aquatic and marine ecosystems. His most recent duties were as a Director of AquaForum, whose AquaHacking Challenge is a Canada-wide competition for graduate students and innovators aiming to create start-ups in the field of water technology and the blue economy.
- Dr. Béland holds a BA and a BSc from Laval University (Quebec City), and a PhD from Dalhousie University (Halifax). He was a Post-Doctoral Fellow at ORSTOM Centre, New Caledonia, and at the University of Queensland, Australia. He resides in Montreal, QC; he is fluent in French and English and proficient in Mandarin.

Henry LICKERS, **Canadian Commissioner**

- Henry Lickers, a Haudenosaunee citizen of the Seneca Nation, Turtle Clan. He has been Director of the Mohawk Council for 32 years and is now the Environmental Science Officer, for the past six years. Throughout his career, Mr. Lickers has been instrumental in incorporating First Nation's people and knowledge into environmental planning and decision making.
- Prior to his appointment as IJC Commissioner, Mr. Lickers was a member of the IJC's current Great Lakes Science Advisory Board (SAB) since 2014. Mr. Lickers also served as a SAB member from 1987-91 and 1997-2000. He has been principle investigator on the EAGLE (Effect on Aboriginal in the Great Lakes Environment) Project and the Naturalized Knowledge Systems Project and the First Nations' Community Health Indicators Project. Henry has been Director Ontario Professional Foresters Association, Scientific Co-Chair of The Haudenosaunee Environmental Taskforce, Vice President of the Board of Directors, St. Lawrence River Institute of Environmental Sciences and a member of the Board of Directors for the Eastern Ontario Model Forest.
- The recipient of a number of awards recognizing his lifelong service to the St. Lawrence River, and service to many environmental and government organizations over his career, Mr. Lickers was given an Honorary Doctor of Science Degree from the State University of New York Syracuse.
- He holds a Bachelor of Science (Biology and Geography) and undertook graduate studies at the University of Waikato in New Zealand, and was a Trent University Ph D. Elder Council member. He resides in Akwesasne, Ontario.

Merrell-Ann PHARE, **Canadian Commissioner**

- Merrell-Ann Phare is a lawyer, writer, strategist, negotiator and relationship-builder who worked extensively in and with indigenous organizations on environmental, land, water, rights and governance issues. She, along with 10 First Nation Chiefs, was the founding Executive Director of the Centre for Indigenous Environmental Resources (CIER), a national First Nation charitable environmental organisation.
- As Chief Negotiator for the Government of the Northwest Territories, Ms. Phare lead the negotiation of transboundary water agreements in the Mackenzie River Basin and the creation of Thaidene Nene, a national and territorial park in the east arm of Great Slave Lake.
- She is the author of the book “Denying the Source: the Crisis of First Nations Water Rights” and co-author of “Ethical Water”. She is a member of the Forum for Leadership on Water, Smart Prosperity's Leadership Council, and is a recipient of Canada's Clean 50 Award. She served as legal counsel and advisor to a number of First Nation and Metis governments and organizations.
- Ms. Phare holds a Bachelor of Arts in Economics (Environmental) Bachelor of Laws, Master of Law (Aboriginal Water Rights and International Trade Law) from the University of Manitoba a Master of Fine Arts (Creative Writing) from University of British Columbia. She resides in Winnipeg, Manitoba.

Jane CORWIN, U.S. Commissioner, Chair

- Jane Corwin served as a member of the New York State Assembly from 2009 through 2016, where she was the Minority Leader Pro Tempore and the ranking member of the Corporations, Authorities and Commissions Committee.
- She was a member of the Environmental Conservation, Education and Mental Health Committees. Ms. Corwin has also served as president of the Philip M. and Jane Lewis Corwin Foundation since 2005, and was the director of Gibraltar Industries out of Buffalo from 2014-2018. She succeeds former US Co-Chair Lana Pollack, who served from 2010 to 2019.

Robert SISSON, U.S. Commissioner

- Robert Sisson has been involved with the environmental organization ConservAmerica since 2006, where he has served as president since 2011, and more recently was appointed by Michigan Governor Rick Snyder to the state's Environmental Justice Working Group in 2017.
- Mr. Sisson has also been involved in the government of the Michigan city of Sturgis, where he has served as mayor from 2005-2007 and as a city commissioner from 2003-2008 and again from 2011-2016.
- Mr. Sisson was a member of the boards of directors for both the Sturgis Economic Development Corporation and the St. Joseph County Economic Development Corporation. He succeeds former US Commissioner Dereth Glance, who served from 2011 to 2016.

Lance YOHE, U.S. Commissioner

- Lance Yohe has been previously involved in Canada-U.S. transboundary organizations centered in the Red River basin for over 25 years, serving as the executive director of the Red River Basin Commission in Fargo, North Dakota from its formation in 2002 until 2014. He was involved with its two predecessors, the Red River Basin Board and International Coalition for Land and Water Stewardship. He also served as a manager with the Southeast Cass Water Resources Board and as a member of the Red River Joint Water Resources Board's Executive Board of Managers.
- In 2014, Mr. Yohe formed Trans Boundary Solutions, a consulting firm working with regional clients on both sides of the boundary, including the Prairie Improvement Network and the Assiniboine River Basin Initiative. He succeeds former US Commissioner Rich Moy, who served from 2011 to 2019.

Memorandum of Understanding and Cooperation

between

The State of Alaska

and

The Province of British Columbia

THE STATE OF ALASKA AND THE PROVINCE OF BRITISH COLUMBIA,

Sharing a common border and desiring to renew and deepen our longstanding relationship of friendship and trust;

Recalling previous memoranda of cooperation between the State of Alaska and the Province of British Columbia, and other multi-jurisdictional memoranda of cooperation;

Recognizing the mutual commitment of Alaska and British Columbia to sustaining our environment for the benefit of all, including our valuable transboundary rivers, watersheds, and fisheries;

Desiring to promote marine transportation reliability and safety, economic development, workforce training, and job creation in each jurisdiction, and to explore specific opportunities for enhanced trade and investment between Alaska and British Columbia;

Committed to sharing information and communicating regularly to improve understanding and reach mutually beneficial outcomes;

Agreed that the full engagement of our provincial and state governments with our respective federal, First Nations and Alaska Native Tribes governments and organizations, local governments, and the support of local residents and citizens, is crucial;

NOW THEREFORE DESIRE TO ENTER INTO THIS MEMORANDUM OF UNDERSTANDING AND COOPERATION AND HEREBY AGREE AS FOLLOWS:

I. Responsible Parties

1.) The Governor of Alaska and the Premier of British Columbia are responsible for oversight and implementation of this Memorandum of Understanding and Cooperation.

   a. The Governor's Office is designated the lead entity for Alaska. The Governor's Office will act as the lead and coordinating entity, and will call upon the appropriate state agencies for implementation.

   b. The Intergovernmental Relations Secretariat, a branch of the Office of the Premier, is designated lead entity for British Columbia. The Secretariat will act as the lead and coordinating entity, and will call upon the appropriate provincial agencies for implementation.

2.) Officials appointed by the Governor and the Premier may negotiate jointly, and, with the permission of their respective Governor or Premier, may execute cooperative arrangements in the implementation of this Memorandum of Understanding and Cooperation. Such agreements shall be incorporated as appendices to this Memorandum.

II. Cooperation

Alaska and British Columbia commit to work together collaboratively to:

1.) Establish a Bilateral Working Group on the Protection of Transboundary Waters

Alaska and British Columbia will establish a Bilateral Working Group on the Protection of Transboundary Waters consisting of officials from state and provincial agencies that will report to and be overseen by the State of Alaska's Lieutenant Governor, as Chair of the Alaska Transboundary Waters Working Group, and British Columbia's Minister of Environment and Minister of Energy and Mines.

The state and provincial agencies will be directed to further develop a cooperative arrangement that will describe the Working Group's member agencies, structure, responsibilities, reporting and communication plans, with the following terms of reference with respect to any development in the Alaska and British Columbia transboundary area which holds potential to cause significant degradation of water quality or of the fisheries they support:

- establish and oversee a joint process to develop and implement a joint water quality monitoring program for transboundary waters ensuring that data are publicly available;
- establish reciprocal procedures that facilitate the invitation and on-going involvement of interested governmental representatives and their designated scientists in environmental assessments triggered under provincial or state law or regulation, and work to facilitate their participation in those processes undertaken under federal laws;
- establish reciprocal procedures that facilitate the invitation and on-going involvement of interested governmental representatives and their designated scientists in permitting processes triggered under provincial or state law or regulation, and work to facilitate their participation in those processes undertaken under federal laws;
- develop opportunities for interested Tribes, First Nations, and stakeholders to better access information about mining and other development projects, in or affecting transboundary watersheds and to have meaningful opportunities to provide input into the authorization processes before they are completed;
- otherwise develop means to communicate and share information about: the ongoing operation and closure of mines in the transboundary waters area; best practices and other means to reduce the risk of pollution of transboundary waters; and other topics of agreed mutual interest relating to such risks; and
- seek alternate public or private sector funding of costs and other needed resources that are in addition to those normally covered by existing state or provincial operating budgets.

2.) **Share Best Practices on Workforce Development and Training**

Recognizing the importance of local hire and ongoing efforts to develop trained workforces in each jurisdiction, Alaska and British Columbia will direct their relevant agencies to share best practices on training and workforce development.

3.) **Advance Marine Transportation Reliability and Safety**

Alaska and British Columbia will collaborate to promote marine transportation reliability and safety. Areas of collaboration include measures to prevent accidents and spills and to reduce the consequences of accidents and spills should they occur.

4.) **Reinforce Emergency Management Mutual Aid Response**

Alaska and British Columbia will continue to collaborate and cooperate on planning, training, exercising and information sharing efforts concerning search and rescue, and emergency management mutual aid.

Alaska and British Columbia agree to continue this spirit of cooperation and partnership through the Pacific Northwest Emergency Management Arrangement (PNEMA).

5.) **Foster Continued Growth of Existing and Increased Transportation Links**

Alaska and British Columbia will direct their relevant Departments and Ministries to share information about infrastructure development and transportation services that would encourage increased and more efficient travel and shipping in the region.

6.) **Continue Joint Visitor Industry Promotion**

Alaska and British Columbia will continue their longstanding cooperation on the joint visitor industry marketing program that promotes travel to the Alaska and Western Canada region.

7.) **Explore Other Areas for Cooperative Action**

Alaska and British Columbia will also direct their relevant agencies to explore other areas that would benefit from cooperation, including natural resource development; fisheries, including ocean acidification; border management, trade and investment; and climate change adaptation.

III. Limitations

This Memorandum of Understanding and Cooperation shall have no legal effect; impose no legally binding obligation enforceable in any court of law or other tribunal of any sort; nor create any funding expectation; nor shall our jurisdictions be responsible for the actions of third parties or associates.

IV. Term and Amendment

This Memorandum of Understanding and Cooperation is effective when signed by both the Governor and the Premier and as otherwise specifically provided for under its provisions. It may be amended at any time by agreement between the signatories and may be terminated by either upon written notice to the other.

AGREED as to form and content and signed and dated in two (2) duplicate originals;

Signed in Juneau

This 25th day of November, 2015

Bill Walker

THE HONORABLE BILL WALKER
GOVERNOR
STATE OF ALASKA

Signed in Vancouver

This 25th day of November, 2015

Christy Clark

THE HONOURABLE CHRISTY CLARK
PREMIER
PROVINCE OF BRITISH COLUMBIA

APPENDIX I to the Memorandum of Understanding and Cooperation between the State of Alaska and the Province of British Columbia executed November 25, 2015 by the Honorable Bill Walker, Governor of Alaska and the Honorable Christy Clark, Premier of British Columbia.

Statement of Cooperation on

PROTECTION OF TRANSBOUNDARY WATERS

Between

The State of Alaska Departments of Environmental Conservation, Fish and Game and Natural Resources

And

The Province of British Columbia Ministries of Environment, and Energy and Mines

Recitals:

A. The State of Alaska and Province of British Columbia have entered into a Memorandum of Understanding and Cooperation (MOU) that among other provisions calls for the collaboration of the agencies identified above in the protection of Transboundary Waters and the fisheries they support. The undersigned are entering into this Statement of Cooperation (SOC) to implement Section II. 1. ("Establishing a Bilateral Working Group on the Protection of Transboundary Waters") of the MOU.
B. Given the level of public interest in mining activity in the region, the primary focus of the Bilateral Working Group (BWG) formed pursuant to Section 1 of the SOC will initially be on concerns relating to existing or proposed mine development, operations and closure, and long term maintenance that hold the potential to cause significant degradation of water quality or of the fisheries they support. The primary geographical area of initial focus will be the Alsek, Stikine, Taku and Unuk watersheds and marine waters where fisheries could be impacted by pollution of these watersheds.
C. In implementing the SOC, it is intended that the agencies represented on the BWG will build on the existing collaboration and good working relationships they have enjoyed for many years, strive to enhance their engagement with the Nisga'a Nation, First Nations, Tribes, communities, organizations and residents in the region, and collaborate with their respective federal government.
D. In entering into and performing this SOC the parties do not intend to constrain or discourage in any way the collaboration and networking that is already taking place among different organizations and people in the Transboundary Region; rather it is a goal of the parties to the SOC to help facilitate this constructive dialog and the cooperative and mutually beneficial relations it engenders.
E. British Columbia acknowledges that it has entered into the Nisga'a Final Agreement (NFA) and other agreements with the Nisga'a Nation which contain unique provisions relevant to the Transboundary Region, and where applicable, will be considered by British Columbia in the implementation of the SOC.

Statement of Cooperation:

The undersigned enter into this Statement of Cooperation as Follows:

1. Bilateral Working Group: A Bilateral Working Group (BWG) is established consisting of the commissioners of the Alaska Departments of Environmental Conservation, Fish and Game, and Natural Resources and the deputy ministers of the British Columbia Ministries of Energy and Mines and Environment to:

    a. Establish and oversee a Technical Working Group on Monitoring as described in Section 2.
    b. Establish and maintain reciprocal procedures that facilitate the invitation and ongoing involvement of interested state and provincial agencies and ministries, federal agencies, the Nisga'a Nation, First Nations, Tribes, organizations and other interested parties in Environmental Assessments and Permitting Processes, triggered under provincial or state law, or under federal law, as described in Section 3.
    c. Establish and maintain procedures to regularly report to each other and engage in discussions on the environmental performance of operating and closed mines and other commercial developments that have ongoing wastewater discharges or impoundments that could pose a significant risk to Transboundary Waters and the fisheries they support, as described in Section 4.
    d. Facilitate opportunities for information sharing and constructive dialog among members of the BWG, and with the Nisga'a Nation, First Nations, Tribes, federal agencies, local governments, organizations and other interested parties, on broader concerns as described in Sections 5 and 6.
    e. Carry out the terms of the SOC, recognizing the limits of current agency budgets, competing demands for agency resources, and legal limits on the authority of each agency.
    f. Continue to look for collaborative means to further the objectives of this SOC.

2. Technical Working Group on Monitoring (TWG-M): The parties recognize the importance of having a reliable and adequate process for the collection, summary and distribution of baseline, regional and project-specific water quality and related data that describes the quality and quantity of Transboundary Waters before, during and after mining and other industrial development, and to monitor the condition of fish and other aquatic life that might be impacted by pollutants in Transboundary Waters.

    a. A TWG-M comprised of experts nominated from agencies and ministries of the parties, whose appointment to the TWG-M shall be confirmed by the BWG, shall develop recommendations for the BWG regarding the scope, elements and funding of a defined coordinated monitoring effort. The members of the TWG-M will actively engage with federal agencies, Tribes, the Nisga'a Nation, First Nations, local governments, industry members, organizations and others in developing their recommendations to the BWG. This may include one or more public workshops in Alaska and British Columbia.
    b. The TWG-M shall also make recommendations to the BWG on ways to help assure the trustworthiness of data, import or link to trustworthy data sets

collected or stored by others, and how best to package and present data and related information to the Nisga'a Nation, First Nations, Tribes, federal agencies and the public.

c. Given the cost of data collection, the constrained budgets of agencies and the geographical extent of the Transboundary Region, the TWG-M shall look for areas of collaboration and means to avoid duplication of effort. As part of this undertaking, they will look for beneficial opportunities to use common or comparable protocols, analytical methods and reporting formats. The TWG-M may include recommendations on how to phase or prioritize work to best allocate available fiscal resources.
d. The TWG-M may also make recommendations on the formation of one or more groups, which could include non-public members, to work on particular projects. Potential areas of collaboration include working with the Nisga'a Nation, First Nations and Tribes to enhance the collection, documentation and sharing of traditional ecological knowledge, baseline water quality data and other information relating to Transboundary Waters and the fisheries they support.
e. The TWG-M may include as part of their recommendations to the BWG a proposed "Action Plan" with proposed actions, timelines and deliverables.
f. It is the intent of the BWG that the TWG-M provide its preliminary draft description of the proposed monitoring and reporting program (Program Description) as described in the MOU along with proposed two-year Work Plan and any related recommendations it has to the BWG within six months of the effective date of this SOC. The BWG, with the continued assistance of the TWG-M, plans to develop the final Program Description, which once accepted by the BWG, shall be attached as "Attachment 1" to the SOC and become a part of it. It may then be modified from time-to-time by the BWG.

3. Participation in the Environmental Assessment and Permitting Processes Relating to Particular Mines and Other Developments: The BWG will look for opportunities to build on and enhance the existing collaboration between technical staff from the state's Departments of Natural Resources, Fish and Game and Environmental Conservation and technical staff from the Ministries of Energy and Mines and the Environment in the permitting and environmental assessments of proposed projects.

    a. While continuing the existing collaboration, the BWG members plan to develop a written description of reciprocal procedures the parties will use to facilitate the invitation and on-going involvement of the government representatives and their designated scientists in the processes described in subsections i-iii below. This may include a more detailed list of projects that one party would like to receive notice of and identify the agencies or offices that should receive that notice. Once this description is approved by all of the members of the BWG, it will be attached as "Attachment 2" to this SOC and become a part of it.

        i. Environmental Assessments;
        ii. Permitting Processes;
        iii. Where appropriate and in furtherance of the objectives of the SOC, analogous processes triggered under federal law where British Columbia or Alaska is engaged in that federal process.

b. As the BWG looks at the best ways to enhance their existing collaboration they will consider, among other options:

   i. Participation of a representative of an agency from the British Columbia or Alaska government as a member, observer or commenting stakeholder in meetings of an inter-agency workgroup convened by the other jurisdiction; and
   ii. Procedures for assuring that comments submitted by an agency from the British Columbia or Alaska government are duly considered and responded to by the reviewing or authorizing agency, or the proponent if required, from the other jurisdiction.

The parties shall also work to enhance and develop opportunities for interested Tribes, the Nisga'a Nation, First Nations, local governments, organizations, and the general public to easily access useful information about mining and other significant development projects in Transboundary Waters and to provide their input into provincial and state authorization processes before they are complete. Among other potential means to accomplish this, it is envisioned there will be public open houses in Alaska during the Environmental Assessment process on particular proposed projects. As allowed by law, the parties shall also look for opportunities to hold public hearings in the other jurisdiction where there is significant public interest or for other opportunities to solicit public comment.

4. Reporting on Ongoing Discharges, Operational Oversight, and Closure: The parties intend to:
   a. Identify and share reports with each other, in a timely manner without violating any legal requirements, that provide reliable information on the on-going compliance of a mine with the terms of its permits and other government authorizations that are intended to protect Transboundary Waters;
   b. Notify in a timely manner the other party to the MOU, to the extent permitted by law, of:

      i. Discovery of a deficiency in the design, placement, construction or maintenance or performance of a tailing dam, or other structure designed to store mine tailings and waste water, that the discovering party believes poses risk of significant degradation to Transboundary Waters;
      ii. Compliance actions taken against a company operating in the Transboundary Region that fails to meet the conditions and requirements prescribed in an environmental assessment certificate or permit, including information that becomes available during the course of the compliance action and relates to the fiscal health of the companies involved; or
      iii. The imminent threat or actual release of pollutants from a mine or former mine, or other commercial development, that the discovering party believes could have a significant adverse impact on Transboundary Waters.

   c. The parties may include more specific provisions in Attachment 2 to this SOC regarding the content, timing and other aspects of the notices to be provided under this Section 4.

5. Engagement of the Parties on Broader Concerns: There are existing concerns and concerns that could arise in the future that relate to more than one mine or other commercial development in the Transboundary Region.

    a. Existing concerns which Alaska seeks to address under the SOC are:

        i. The risk that a deficiency in the design, placement, construction or maintenance of an earthen tailings dam, or other structure designed to store mine tailings and waste water, could lead to a catastrophic failure that would result in significant degradation of Transboundary Waters; and
        ii. Financial impacts to individuals or communities as a result of a mine-related incident.

    b. Existing concerns which British Columbia seeks to address under the SOC are:

        i. Concerns that British Columbia is not addressing the allowable margin of risk around the design, construction and management of tailings storage facilities by introducing new regulations and safety standards for tailings storage facilities, including a review of the Health, Safety and Reclamation Code for Mines; and
        ii. Concerns that British Columbia does not have in place robust regulatory processes for natural resource projects, including environmental assessments, permitting, compliance and enforcement; and
        iii. Greater understanding of Canadian common law and constitutional law requirements to consult and accommodate the Nisga'a Nation, and First Nations.

    c. The parties may develop a joint statement of the issue(s) relating to each of the existing concerns described in 5.a. or b. above. Each statement of an issue may then be used to develop a report on the measures the jurisdiction being asked to address the issue has in place or is planning to put in place that is expected to address the issue. This could include how the jurisdiction plans to address any related recommendations or findings from third party reviews of the issue. The parties may then develop additional recommendations for addressing the issue for consideration of the jurisdiction addressing the issue.
    d. Any member of the BWG may, in a written request to all of the members of the BWG, ask that they agree to attempt to address a specific concern not otherwise being addressed under 5.a. - c. or other section of this SOC. The written request should identify the concern with specificity and identify any means the requesting BWG member believes should be used to address the concern under the SOC. This could include, by way of example, convening a special workgroup, collaborating on a special study or demonstration project or a technology conference.

6. Communications: A key goal of this SOC is transparency and dialog with the Tribes, the Nisga'a Nation, First Nations, federal and local governments, organizations and other interested parties. The BWG intends to prepare a Communication Plan that describes with reasonable specificity how the BWG and its respective agencies, and technical and work

groups established under the SOC, might enhance communication with the Nisga'a Nation, First Nations, Tribes, communities, organizations, residents in the region and with federal agencies regarding work performed by the parties. Subject to any legal restrictions, the BWG intends to consider ways to:

a. Better inform Tribes, the Nisga'a Nation, First Nations and the public regarding the steps for particular projects off Nisga'a Lands in entering the Environmental Assessment process and opportunities for Tribes, the Nisga'a Nation, First Nations and the public to engage through public workshops (including in Alaska) and otherwise;
b. Better inform Tribes, the Nisga'a Nation, First Nations and the public regarding the steps for particular projects off Nisga'a Lands in the Permitting Process and opportunities for Tribal, the Nisga'a Nation, First Nations and the public to engage;
c. Provide easier access by the Tribes, the Nisga'a Nation, First Nations and the public to useful information relating to proposed mines and other significant commercial development, including comments and recommendations submitted by Alaska agencies as part of their participation in these processes;
d. Provide in a timely manner, early on, meaningful information on potential future mine and other significant developments that might be considered under the SOC;
e. Provide in a timely manner relevant information on the ongoing compliance of a mine, during the operation, shutdown, closure and reclamation phases of its life, with the terms of its permits, authorizing documents, approved plans and other legal requirements; and immediate notice of any catastrophic or other unanticipated event relating to a transboundary mine or other commercial development that could have significant environmental impacts downstream of the site of the event.

7. The Nisga'a Nation

a. The Parties acknowledge that prior to any decisions in respect of policies, procedures, or initiatives contemplated under this SOC that relate to existing or proposed mine development, operations and closure which could potentially impact Nisga'a rights or interests under the Nisga'a Final Agreement or any other agreement between the Nisga'a Nation and British Columbia which contain unique provisions in respect of the Transboundary Waters and the Transboundary Region, British Columbia will consult with the Nisga'a Nation in accordance with the Nisga'a Final Agreement, such other agreements and other procedures as agreed to by British Columbia and the Nisga'a Nation.

b. The Parties acknowledge and understand that the SOC does not apply to any project or portion of a project located on Nisga'a Lands (as that term is defined in the Nisga'a Final Agreement and as depicted on the map attached hereto as Attachment "B") which require an environmental assessment or other permits pursuant to Nisga'a law.

8. Engagement with the Nisga'a Nation, First Nations and Tribes in the Transboundary Region:

    a. The parties intend, in their implementation of the SOC, to enhance their engagement with the Nisga'a Nation, First Nations and Tribes in the Transboundary Region. This may include, but is not limited to:

        i. With the assistance and participation of the Nisga'a Nation, First Nations and Tribes, the collection, documentation and sharing of traditional ecological knowledge;
        ii. The collection of water quality and other data relevant to the monitoring of the condition of Transboundary Waters and the fisheries they support;
        iii. The establishment of one or more councils consisting of members designated by the Nisga'a Nation, First Nations and Tribes to engage with the BWG on matters relating to the implementation and performance of this SOC.

9. Engagement with Communities and the Public.

    a. It is a goal of the parties in performing work under this SOC to engage collaboratively with communities, organizations and individuals interested in protecting the quality of Transboundary Waters and the fisheries they support.
    b. The parties can engage with individuals from citizens' groups in British Columbia and Alaska to provide independent advice to an agency or company regarding one or more commercial operations and the resources they might impact in a particular geographical area. Citizens groups generally represent a broad cross section of stakeholders and help find collaborative solutions or outcomes. With this in mind, the parties plan to look for opportunities to facilitate:

        i. Citizens from Alaska to work with citizens groups in British Columbia that have a scope of work that includes concerns of significant interest to Alaskans in the Transboundary Region;
        ii. Citizens from British Columbia to work with citizen groups in Alaska that have a scope of work that includes concerns of significant interest to citizens of British Columbia in the Transboundary Region;
        iii. Representatives from agencies, the Nisga'a Nation, First Nations, Tribes and organizations in one jurisdiction to attend meetings of citizen groups in the other jurisdiction to present helpful information and discuss concerns relating to Transboundary Waters and the fisheries they support.

10. Engagement with Federal Agencies: A number of the concerns the parties may seek to address under this SOC might involve the duties and authorities of one or more federal agency. In some instances a federal agency might have experience, expertise or resources that might be of assistance in addressing a concern that arises under the SOC. With this in mind, the parties intend to look for beneficial ways to engage with their respective federal agencies in addressing concerns and issues that arise under the SOC. This includes without limitation, inviting persons from federal agencies to work with the TWG-M and other technical and

special working groups and including provisions in the Communication Plan for providing information and invitations to meetings to interested federal agencies.

11. Meetings of the BWG: The BWG shall meet in person or by phone at the will of the group. It is envisioned the BWG will meet at least quarterly during the first year of this SOC and at least once a year in succeeding years. If a member of the BWG is unavailable to attend a meeting, she or he may designate to their deputy commissioner or assistant deputy minister authority to participate in that meeting on their behalf. Nothing in this SOC is meant to discourage members of the BWG from collaborating with each other on any matter without engaging other members of the BWG who might be less involved in that matter. Collaboration being a key goal of the SOC, the BWG intends to act with the consensus of all of its members.

12. Oversight of the BWG: The MOU provides that the Lieutenant Governor of Alaska, as chair of the Alaska Transboundary Working Group, and British Columbia's Minister of Environment and Minister of Energy and Mines shall provide oversight of the BWG.

    a. The members of the BWG from each jurisdiction are responsible for providing to their respective senior leader(s)(Lieutenant Governor in Alaska and the Minister of Environment and Minister of Energy and Mines in British Columbia): 1) advance notice of meetings of the BWG and of its technical and other groups established by the BWG under this SOC; 2) drafts of the Communication Plan (described in Section 6 of the SOC); proposed goals, timelines and performance measures; and other documents prepared for or by the BWG that are important to the implementation of the MOU and 3) such other information as their senior leader(s) may desire.
    b. If the BWG is unable to find consensus on a matter they are discussing, they may seek assistance from the Alaska Lieutenant Governor and British Columbia Minister of Environment and Minister of Energy and Mines.

13. Funding: The parties recognize the constraints contracting budgets put on them and the need to prioritize work under the SOC, build on existing collaborations, leverage existing partnerships and resources, and avoid unnecessary duplication.

14. Definition of Terms: The following terms are defined as follows for purpose of this SOC.

    a. "Transboundary Water(s)" includes: any river, stream or other surface water that flows across the international borderline between Alaska and British Columbia, including all tributaries to these waters, and on which mining or other commercial development is being planned, is occurring or has occurred, that involves the risk of significant degradation of those waters or the fisheries they support; and, also includes all marine waters within the jurisdiction of Alaska south of sixty (60) degrees latitude or within the jurisdiction of British Columbia. Attached as Attachment "A" to this SOC is a map showing the location of the four major watersheds that cross the boundary between British Columbia and Alaska and the location of the sixty degree line of latitude.

b. "Transboundary Region" includes the areas in British Columbia that are drained by Transboundary Waters or that are part of the Southeast panhandle of Alaska south of sixty (60) degrees latitude.
c. "Environmental Assessment" means any environmental review or assessment that:

    i. Is required under federal, provincial or state law in advance of the consideration of a permit application or as part of the consideration of whether to issue a permit or other governmental authorization;
    ii. Involves significant participation by one or more of the agencies represented on the BWG; and
    iii. Pertains to a proposed mining or other commercial development that could, in its construction, operation, closure or reclamation, result in significant degradation of a Transboundary Water or the fisheries it supports.

d. "Permitting Processes" means any governmental process conducted by a state or provincial agency that is required by law and involves the exercise of its regulatory authority to issue or approve a permit or authorization in response to a proposed mine or other commercial development that could in its construction, operation, closure or reclamation, result in significant degradation of a Transboundary Water or the fisheries it supports.
e. "Fisheries" for purposes of this SOC, includes: areas where fish are harvested for commercial, subsistence, recreational and other purposes; fish populations harvested for these purposes; and the habitats that support those fish.
f. "Significant degradation", for purposes of this SOC, means an addition of contaminants from one or more sources that lowers the quality of the receiving water such that the receiving water:

    i. If within the jurisdiction of the state of Alaska, cannot support the designated uses of that water specified under AS 46.03.080 and 18 AAC 70.020, or
    ii. If within the jurisdiction of the Province of British is considered pollution under the *Environmental Management Act*.

15. Interpretation: This SOC is to be interpreted consistent with the terms of the MOU.

16. Limitations: This SOC shall have no legal effect; impose no legally binding obligation enforceable in any court of law or other tribunal of any sort, nor create any funding expectation; nor shall either Alaska or British Columbia be responsible for the actions of third parties or associates. This SOC does not limit or change in any way the legal rights or obligations of either party, or any third party, may have under a treaty, contract or other agreement or law. This SOC does not narrow, expand or supersede any state or provincial law. By entering into this SOC or taking any action pursuant to this SOC, Alaska or British Columbia is not precluded from seeking or supporting at any time an alternative means for resolving a concern, including without limitation, a referral to the International Joint Commission pursuant to the Boundary Waters Treaty between the United States and Canada. Any decision or recommendation by the BWG or any committee they form pursuant to this SOC shall not be legally binding on either party or their agencies.

17. Notices: Except as may be otherwise provided in Attachments 1 or 2 to this SOC, notices that are to be provided by one party to the other may be made in writing or by email.

18. Term and Amendment: This Statement of Cooperation is effective when signed by the Lieutenant Governor of Alaska, British Columbia's Minister of Environment and Minister of Energy and Mines. It may be amended at any time by agreement among all of the signatories and may be terminated by any of them by written notice to the others.

AGREED as to form and content and signed and dated in two (2) duplicate originals in Juneau, Alaska and Victoria, British Columbia this ___ day of ___ 2016.

_____	_____	_____
Byron Mallott Lieutenant Governor, Alaska United States	Mary Polak Minister of Environment British Columbia, Canada	Bill Bennett Minister of Energy and Mines, British Columbia, Canada

ATTACHMENT 2 to the Statement of Cooperation (SOC) on Protection of Transboundary Waters[1] (October 6, 2016) between the State of Alaska Departments of Environmental Conservation (ADEC), Fish and Game (ADF&G) and Natural Resources (ADNR) and the Province of British Columbia Ministries of Environment (MoE) and Energy and Mines (MEM).

Reciprocal Procedures

1. Scope:
    a. The parties will use the following procedures to facilitate the invitation and on-going involvement of their representatives and designated scientists[2] in the following processes:
        i. Environmental Assessments[1],
        ii. Permitting processes[1], and
        iii. Where appropriate and in furtherance of the objectives of the SOC, analogous processes triggered under federal law where British Columbia or Alaska is engaged in that federal process.

2. Correspondence:
    a. For purposes of these procedures, e-mail is the preferred means of providing invitations, notifications, responses, or other necessary correspondence between parties.

3. State of Alaska participation in the B.C. Environmental Assessment (EA) process:
    a. Invitation and response:
        i. As the primary means of inviting the State of Alaska to participate in the EA process, the MoE, Environmental Assessment Office (EAO) will distribute Section 10 (1) (c) Orders to the ADNR, Office of Project Management and Permitting (OPMP) for proposed and existing projects within the Transboundary Region[1] that are subject to review under the *British Columbia Environmental Assessment Act* (BCEAA).
        ii. Within 30 days following receipt of a Section 10 (1) (c)Order, the OPMP will respond to the EAO to confirm whether the State of Alaska will participate in the EA process for the corresponding project.
        iii. The EAO will also notify the OPMP of any of the following applications under the BCEAA involving a proposed or existing project in the Transboundary Region:
            A. an application for an order under Section 10 (1)(b), granting an exemption from the EA process;
            B. an application for an order under Section 10 (1) (a), referring a reviewable project to the minister for a determination under Section 14;
            C. an application under Section 19 for either a typical or complex[3] amendment to an existing Environment Assessment Certificate;
            D. an application under Section 18 to grant an extension to the period within which a project is to be substantially started.
        iv. Within 30 days following receipt of a notice for any of the above applications, the OPMP will respond to the EAO to confirm whether the State of Alaska will

[1] See Definition of Terms in SOC
[2] Includes technical experts and other agency designees
[3] "Typical" and "complex" as defined in EAO guidance document: "*Seeking an Amendment to an Environmental Assessment Certificate – Guidance for Certificate Holders*"

provide comments for, or participate in a review associated with, the corresponding application.

b. State of Alaska participation:
    i. OPMP will serve as the State of Alaska's primary point-of-contact to the EAO;
    ii. OPMP will coordinate with ADEC, ADF&G, ADNR, and other appropriate Alaska state agencies and their designees, using a team approach, throughout the EA process;
    iii. The team of Alaska state representatives, coordinated by OPMP, will participate as members to project-specific working groups, organized and facilitated by the EAO, to review project-related information.
        A. Verbal comments may be provided by Alaska state representatives during working group meetings;
        B. Written comments developed by Alaska state agencies during the EA process will be consolidated by OPMP and provided to the EAO.
        C. EAO facilitated working groups will be conducted according to the terms set out in the most current version of the "*Environment Assessment Advisory Working Group Terms of Reference*".

4. State of Alaska participation in Province of British Columbia permitting processes:
    a. Major mine projects:
        i. Invitation and response:
            A. The MEM, Major Mines Permitting Office (MMPO) will invite the OPMP to participate in the Mine Review Committee (MRC) when the MRC is established for any project in which the State of Alaska has participated in the EA process.
            B. Within 30 days following receipt of an invitation, the OPMP will respond to the MMPO to confirm whether the State of Alaska will participate in the MRC for the corresponding project.
        ii. State of Alaska participation:
            A. OPMP will serve as the State of Alaska's primary point-of-contact to the MMPO;
            B. OPMP will coordinate with ADEC, ADF&G, ADNR, and other appropriate Alaska state agencies and their designees, using a team approach, throughout the provincial permitting process;
            C. The team of Alaska state representatives, coordinated by OPMP, will participate as members to the project-specific MRC, organized and facilitated by the MMPO, to review project-related information.
                a. Verbal comments may be provided by Alaska state representatives during MRC meetings;
                b. Written comments developed by Alaska state agencies during the provincial permitting process will be consolidated by OPMP and provided to the MMPO.

    b. Non-major mine and other commercial development projects:
        i. Invitation and response:
            A. The MEM and/or MoE will notify OPMP when a complete permit package, including major amendments, has been received and accepted for review.

B. Within 30 days following notification, the OPMP will respond to the MEM and/or MoE to confirm whether the State of Alaska will participate in the provincial permitting process for the corresponding project.

ii. State of Alaska participation:

A. OPMP will identify which Alaska state agency will serve as the State of Alaska's primary point-of-contact to the MEM and/or MoE;

B. The identified Alaska state agency will coordinate with other Alaska state agencies, as appropriate, throughout the provincial permitting process;

C. Representatives from Alaska state agencies will participate in the review of project-related information using processes defined by MEM and/or MoE.

a. Verbal comments may be provided by Alaska state representatives during interagency meetings;

b. Written comments developed by Alaska state agencies during provincial permitting processes will be provided to the MEM, MoE, or other applicable provincial agencies.

5. Province of British Columbia participation in the Alaska permitting processes:

a. Major mine projects:

i. Invitation and response:

A. The OPMP will notify the MMPO, EAO and project proponent when

a. activities associated with major mine projects located in the British Columbia portion of the Transboundary Region may also require authorization(s) under State of Alaska law, or

b. activities associated with major mine projects located in the Alaska portion of the Transboundary Region that may result in environmental impacts in British Columbia.

ii. Province of British Columbia participation:

A. OPMP, MMPO, and the EAO will discuss the development of procedures for engagement under this section with the Bilateral Working Group (BWG) after a project is identified, per Section 5.a.i.A above.

b. Non-major mines and other commercial development projects:

i. The BWG may identify projects subject to this section, direct appropriate actions, or develop procedures as necessary.

6. Federal environmental review processes:

a. Notification:

i. OPMP will notify the EAO of proposed mining or other commercial development projects located in the Transboundary Region subject to review under the *National Environmental Policy Act* (NEPA) for which the State of Alaska has been accepted as a cooperating agency by the lead federal agency.

ii. EAO will notify the OPMP of proposed mining or other commercial development projects located in the Transboundary Region where provincial and federal permitting and licensing is expected to proceed concurrently with the coordinated environmental review pursuant to BCEAA and *Canadian Environmental Assessment Act of 2012* (CEAA 2012).

AGENDA: BC/AK Bilateral Working Group

Tuesday, June 18, 2019; 9:30 – 11:00 AM (PST); 8:30 – 10:00 AM (AKST)
Teleconference: 1-800-315-6338, Participant ID: 78158#

Invitees:

British Columbia (BC):

- Assistant Deputy Minister Laurel Nash, Environmental Protection Division, ENV
- Assistant Deputy Minister Peter Robb, Energy, Mines and Petroleum Resources, EMPR
- Anthony Danks, Executive Director, Strategic Policy, ENV
- Ryan Forman, Executive Director, Strategic Policy and Intergovernmental Relations Branch, EMPR
- Jennifer Anthony, Director, Strategic Initiatives
- Lisa Paquin, Director, Intergovernmental Relations, ENV
- Michel Ryan-Aylward, Sr. Policy Advisor, Intergovernmental Relations, ENV
- Robyn Roome, Regional Director, Regional Operations, ENV
- Gabrielle Barwin, Policy Analyst, Policy and Competitiveness

Alaska (AK):

- Commissioner Jason Brune, Department of Environmental Conservation
- Commissioner Corri Feige, Department of Natural Resources
- Deputy Commissioner, Lynn Kent, Department of Environmental Conservation
- Deputy Commissioner, Brent Goodrum, Department of Natural Resources
- Deputy Commissioner, Ben Mulligan, Department of Fish and Game
- Kate Kanouse, Regional Supervisor, Department of Fish and Game
- Peter Caltagirone, Special Assistant, Department of Natural Resources
- Kyle Moselle, Associate Director, Office of Project Management and Permitting, Department of Natural Resources

SUMMARY:

1. Welcome and introduction of Bilateral Working Group (BWG) members and guests
    - Introductions to the newly appointed Alaskan Commissioners were made by AK members and reciprocated by BC members of the BWG. General agreement that the focus of the meeting was to provide key updates and an overview of work that has been accomplished since the signing of the MOU in 2015.

2. Review and approval of agenda
    - Agenda approved by BC and AK.

3. Overview of Transboundary Documents

- BC Ministry of Energy, Mines and Petroleum Resources (EMPR) provided a summary on the history of the BC-AK transboundary relationship and walked through the following transboundary documents: Memorandum of Understanding and Cooperation (MOU), Statement of Cooperation on the Protection of Transboundary Waters (SoC), and the Reciprocal Procedures.
- Through the development of the Reciprocal Procedures, the State of Alaska is given an opportunity to be involved in the environmental assessment of projects and may provide input into BC's regulatory processes and decisions.

- BC articulated that a primary focus of the BWG has been to support and establish the intent of the MOU and the SoC. The transboundary file is an ever-evolving dialogue and BC staff want to ensure the Commissioners needs are being met so that the two jurisdictions are able to reach mutually beneficial goals, protect the environment in transboundary watersheds and promote economic activities.
- The Communication Plan was introduced, and the Transboundary Waters Newsletter was referenced as a standing BWG agenda item. The Transboundary Waters Newsletter is an annual newsletter that is jointly developed by AK and BC and includes topics relevant to both jurisdictions. Past topics have included updates on transboundary mine sites, indigenous collaboration in BC and Alaska, water quality monitoring update, etc.
- The water monitoring component was indicated to be a key piece that produces useful information and addresses key interests.
- BC Ministry of Environment and Climate Change Strategies (ENV) provided an update on the Technical Working Group on Monitoring (TWG-M).
    - The TWG-M developed a two-year joint water quality monitoring program (approved by the BWG October 5, 2017).
    - Monitoring began in the fall of 2017.
    - 4-5 sampling time frames have been completed in BC, with one more coming up in the summer of 2019 which will complete the program.
    - A summary report for the BWG, key partners and stakeholders will be developed, planned for fall 2019.
    - Alaska Tribes and BC First Nations were consulted on the development of the program, and ENV has partnered with the Tahltan First Nation and the Taku River Tlingit First Nation to conduct the monitoring.
- Key messages from BC:
    - Fruitful relationship developed between the two jurisdictions;
    - Support to keep the dialogue at the state/provincial level as progress continues to be made on transboundary topics;
    - BC and AK working collaboratively to solve transboundary concerns; and
    - BC continuously working towards the remediation of the Tulsequah Chief Mine.
- AK reciprocated BC's desire to keep the dialogue at a state/provincial level, as the two jurisdictions are best suited for solving their mutual interests. AK has been coordinating with BC in some fashion as far back as 1994.
- AK thanked BC for their patience as the new government came into power and became reacquainted with the BC-AK work.

3. General discussion of working relationship between Alaska and British Columbia
    - EMPR provided an overview of the BC Regional Mining Alliance (BCRMA) and their role in northwest BC.
    - The BCRMA was established in early 2018, and is comprised of First Nations governments and industry members whose mandate it is to promote BC as the leading exploration and mining jurisdiction in Canada in which to invest. The BCRMA is

currently focused on the "Golden Triangle" a region richly endowed with mineral resources located in northwestern BC.

- Descriptions and updates of the following mines were provided:
    - Brucejack:
        - A production increase was approved in December 2018 and the applicable permits followed the Environmental Assessment Certificate a month later.
    - Red Chris:
        - In May 2019, Australian-based Newcrest Mining Ltd. acquired a 70% joint venture interest in the mine. Imperial Metals will retain a 30% interest in the mine. The Five-Year Plan and Reclamation Program was received from Red Chris Development Corporation (RCDC) in June 2018, and Tahltan First Nation and the Province provided comments regarding the plan in late 2018 and early 2019. The Mine Development Review Committee (MDRC) has been paused while the sale of the mine and transfer of permit from RCDC to Newcrest is completed. The MDRC process is expected to trigger permit amendments, including an update to the reclamation security.
    - Galore Creek:
        - The project has been permitted for early construction activities, but no major permits have been issued. Alaska was involved in Galore Creek's Environmental Assessment process. No significant updates or developments have been made since the August 2018 BWG meeting.
    - Red Mountain:
        - The BC Environmental Assessment Certificate was received on October 5, 2018, and the Positive Decision statement from the Canadian Environmental Assessment Agency was issued on January 14, 2019. No further updates at this time.
    - Tulsequah Chief:
        - In October 2018 EMPR issued a final notice to Chieftain Metals regarding outstanding orders and issues at the site. The letter stated that the mine site was considered a closed mine as per section 17 of the *Mines Act*, and as such BC would be taking the necessary steps to remediate and reclaim the site to address potential impacts to the environment and human health. In November 2018, a request for proposals was issued regarding developing an appropriate remediation and reclamation plan to identify scope, timelines and costing associated with the site. Review of the proposals received was undertaken in collaboration with the Taku River Tlingit First Nation. The contract was awarded to SNC-Lavalin and SRK in February 2019, since that time the contractors have been reviewing existing data, identifying gaps, and scoping of remedial options to inform the

proposed field program for summer 2019. The proposal for the remediation and reclamation plan is anticipated to be received in November 2019; and BC is committed to working collaboratively with AK on next steps and review.

- BC also invited AK to join ongoing work in the development and review of the plan as this work is beginning to take shape over the next number of months. AK indicated an interest in participating on the working group for Tulsequah going forward.
- AK articulated that the ongoing dialogue on the transboundary issues between BC and AK offers a lot of value. The BWG is a transparent forum for discussions to take place at a high level in both governments, which in turn drives better exploration and better operators. There is solid oversight, regulators are paying attention and can speak to the issues that present themselves. We believe mining can be done responsibly, we must continue to ensure the highest of oversight. AK and BC are some of the premier jurisdictions for mining. Both environmental protection and economic development are not mutually exclusive. Cleaning up the Tulsequah Chief Mine is a shared priority for AK and BC , and AK applauds the work BC is currently engaged in to address the remediation needs at the site.
- BC reaffirmed their commitments to address Tulsequah, and recognized that unless action is taken, all the positive collaborative work AK and BC have done together, gets lost in the wash.

4. Transition of Chair and Secretariat
    - The role of Chair for the BWG was transitioned from AK to BC for calendar year 2020.
    - AK committed to finalizing the May and August 2018 BWG meeting summaries and provide them back to BC to post on the BC AK Transboundary Waters webpage.
    - BC committed to drafting the June 18 meeting summary, and once finalized, share with AK for review.

5. Plans for next BWG meeting
    - AK extended an invite to host BC staff in Alaska, for the next BWG meeting; discussions ensued regarding best timing and location. Post-meeting, a tentative proposal was circulated to hold the next meeting in January 2020, during the Association of Mineral Exploration's annual conference, Round-up.
    - Representatives from the AK and BC will work together to coordinate the scheduling of the next BWG meeting and work with the respective staff to develop an agenda.
    - Agenda to include updates on projects of interest to Alaska and ensure that Tulsequah is a standard agenda item.

<u>Action Items:</u>

- BC to draft meeting summary and provide to AK for review and approval.

- Representatives from the AK and BC to coordinate the scheduling of the next BWG meeting and work with the respective staff to develop an agenda.
- Alaska to finalize May and August 2018 BWG meeting summaries, and BC to publish on the BC Alaska Transboundary Waters webpage, located here: https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/compliance-enforcement/bc-alaska-transboundary-waters
- BC and AK staff to track down the signed copy of the SoC and share at the next BWG meeting.
- TWG-M to draft a mid-program summary report for submission to the BWG at their next meeting.

TRANSBOUNDARY WATERS 2019

A newsletter about mining interests and the shared rivers, watersheds and fisheries within the transboundary area of British Columbia and Alaska.

B.C.'s Environmental Assessment Act Update

In July 2017, the Minister of Environment and Climate Change Strategy (ENV) was directed to revitalize the Environmental Assessment (EA) process "to ensure the legal right of First Nations are respected, and the public's expectation of a strong transparent process is met."

Changes to B.C.'s EA process are focused on:

- Enhancing public confidence by ensuring impacted Indigenous Nations, local communities and governments and the broader public can meaningfully participate in all stages of environmental assessment through a process that is robust, transparent, timely and predictable;
- Advancing reconciliation with Indigenous Nations; and
- Protecting the environment while offering clear pathways to sustainable project approvals by providing certainty of process and clarity of regulatory considerations including opportunities for early indications of the likelihood of success.

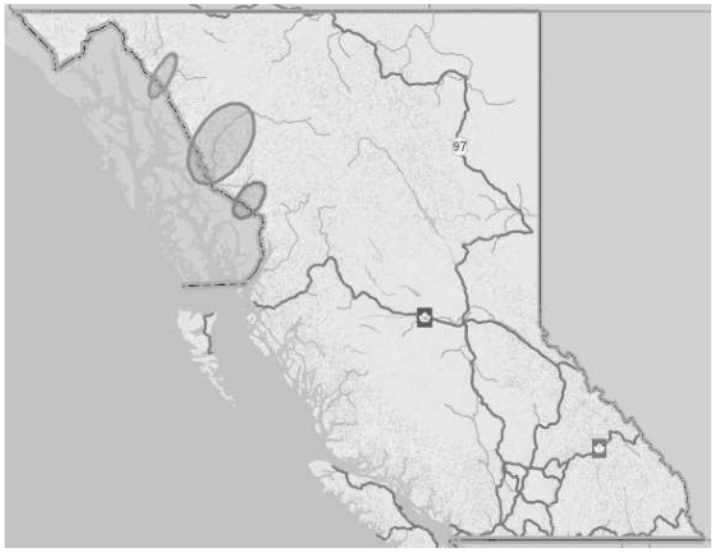
Following an extensive engagement process, a new *Environmental Assessment Act* was passed in fall 2018. In 2019, the Environmental Assessment Office has been further engaging on the development of policies and regulations to support implementation of the new Act. It is anticipated that the new EA process will be implemented in fall 2019.

For more information about the new *Environmental Assessment Act* please visit the following website: www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization

Building Relationships and Transboundary River Monitoring (B.C. Update)

Staff from B.C. and Alaska provincial/state agencies developed the Joint Water Quality Monitoring Program for Transboundary Waters. As part of this program, B.C. ENV biologists have been monitoring in the Taku, Stikine and Unuk watersheds in cooperation with the Taku River Tlingit First Nation (TRTFN) and the Tahltan Central Government (TCG) since 2017. The Taku and the Stikine watersheds are located within the traditional territories of the Tlingit and Tahltan Indigenous peoples and the Unuk watershed is located within the traditional territories of the Tlingit, Tahltan, Tsetsaut Skii Km Lax Ha and Haida Indigenous peoples.

ENV staff are working with State of Alaska colleagues to report out on results of the monitoring completed by both jurisdictions, as part of the two-year coordinated aquatic environmental monitoring program.



B.C. monitoring site locations. Red circle denotes the Unuk River, Green Circle denotes the Stikine River and purple represents the Taku River.

TRANSBOUNDARY WATERS 2019

Lisa Torunski (ENV) and Kindra Maricle (FLNRORD) with Brianna Tashoots, Tahltan Wildlife Guardian

The focus of the monitoring program is to characterize the overall health of the watersheds and monitor for impacts from mining operations and other industrial development by examining water quality, sediment quality, benthic invertebrate tissue chemistry, and fish tissue chemistry.

The project team would like to acknowledge and thank the staff and managers within ENV, B.C. Forest, Lands and Natural Resource Operations and Rural Development (FLNRORD) and external partners from the TRTFN and the TCG, for their assistance as the equipment, staff and logistical support received were invaluable to the program's success.

First Nation Wildlife Guardians rendered their assistance and were trained to facilitate quarterly water quality sampling at remote locations of northwestern B.C. To support the involvement and information requests of FLNRORD Fisheries staff, the goal of the fish sampling component was expanded to include the collection of DNA samples and/or otoliths from any Dolly Varden captured.

These collaborative field trips were excellent opportunities to build cooperative working relationships and the contacts and conversations resulted in a greater awareness of the mandates of each organization. The partnership provided participants with a deeper understanding and appreciation for the distinctions and similarities between the various approaches being employed to monitor, protect and preserve various facets of the natural environment.

We look forward to future opportunities for collaboration as we continue to foster these relationships.

Lisa Torunski (ENV) and Tahltan Wildlife Guardian, Clements Brace

Jackie Caldwell (TRTFN), Lisa Torunski (ENV), Kindra Maricle (FLNRORD) on the Taku River

Water Sampling in the B.C.-AK Transboundary Watersheds (AK Update)

Another successful year of water quality sampling is wrapping-up in the transboundary watersheds between AK and B.C. In spite of wildfires, extreme drought in southeast AK, and August snow storms in B.C. both agencies have completed their respective sampling efforts. This summer's field work compliments additional work outlined in the Joint Water Quality Monitoring Program for Transboundary waters - a two-year coordinated aquatic environmental monitoring program.

The Alaska Department of Environmental Conservation (ADEC) has led three surveys in Southeast Alaska since 2017. Lakes were surveyed in 2017, rivers in 2018, and this summer a survey of streams was completed. Data collected in all surveys include: water chemistry, sediment chemistry, biological indicators (fish and macroinvertebrates) and physical habitat measurements. Throughout all three surveys ADEC and B.C. have discussed parameters and methodologies to ensure sample results are comparable. Additionally, all three ADEC surveys are part of the U.S. Environmental Protection Agency's National Aquatic Resources Surveys (NARS). NARS provides funding, training, and sample consistency across the United States.

In both the lakes and rivers survey preliminary results indicated natural elevated mineralization due to underlying geology. Although there were limited exceedances of water and sediment quality criteria (most exceedances were metals), no discernable patterns were observed. Samples from the streams surveyed this summer are currently being analyzed. Once all the data have been verified, a final report will be completed by fall 2020, which will compare results from B.C. and AK.

Numerous local, state, federal and Tribal organizations contributed to make these surveys possible. For more information please visit: http://dec.alaska.gov/water/water-quality/monitoring/surveys/.

Transboundary Mine Updates

Johnny Mountain Mine Reclamation

Located in the Boundary Range of the Coast Mountains which drains along the Iskut River. The Johnny Mountain Mine was a remote, fly-in mine that produced ore back in the 1980's and 1990's. Until late 2005, the property had been operated and managed by more than a dozen companies resulting in a lack of remediation and reclamation for the area. Infrastructure that was left behind included a 350 tonnes per day mill building/ processing plant, three underground portals with associated waste rock portal pads, five vent raises, fuel tank farm, 1,600m airstrip, 11.5ha tailings impoundment area, landfill, roads and miscellaneous debris dumps.

SnipGold (wholly acquired by Seabridge Gold Inc in 2016), with the support of the Tahltan Nation, committed to reclaiming the historic legacy and outstanding liabilities over a multi-year timeline following the approved Closure and Reclamation Plan. Since June 2016, approximately $6 million has been spent on environmental site activities.

A dam safety review was undertaken concluding that the tailings dam was in good condition, and the implementation of regional monitoring programs identified that the former mine is not impacting sensitive downstream fish habitat. To gain an understanding of the groundwater, surface water and soil conditions at Johnny Mountain, a detailed investigation and sampling program was implemented.

Reclamation activities have been ongoing at the site and include removing spilled ore concentrate, covering existing mine openings, dismantling the abandoned fuel tank farm, upgrading the existing landfill, removing hazardous materials to appropriate waste disposal facility and disposing of non-hazardous materials within existing landfill and capping with mineral soils. Treatment of hydrocarbon contaminated soils occurred and revegetation efforts have been undertaken across disturbed areas of the site. Ongoing remediation and reclamation work is planned for the site with the end objective of the Closure Plan being to return disturbed lands and new anthropogenic landforms to their original land use.

Before and after photos of the Johnny Mt. site

Kerr-Sulphurets-Mitchell (KSM) Mine

KSM Mining Unlimited Liability Corporation, subsidiary of Seabridge Gold Inc., is the holder of the KSM Property. The project is a proposed gold, copper, silver and molybdenum mine, located 65 kms northwest of Stewart, B.C. The project received federal and provincial environmental approvals in 2014 which recognized KSM will not result in significant adverse effects. With an estimated 5-year construction and a 52-year mine life, the company expects to employ 1,522 people during construction and provide 1,407 direct jobs during mine operations. KSM is currently focused on obtaining additional operational permits and finding a partner to move the project into production.

Tulsequah Chief Mine

The Tulsequah Chief Mine is a historical copper/lead/zinc mine located about 100kms southwest of Atlin. The mine operated from 1951 to 1957, and since its closure has been the cause of historical acid rock drainage into the Tulsequah River, a tributary of the Taku River. The mine was acquired by Chieftain Metals in 2010 with the agreement that the company would address the acid rock drainage as part of re-development of the mine. Chieftain Metals subsequently went into court-ordered receivership in September 2016. The B.C. government continues to monitor the ongoing receivership proceedings and explore all possible options for holding all past and present owners of the Tulsequah Chief Mine accountable.

A report was submitted in February 2018, as required by the Chief Inspector of Mines, however it was determined that the report did not contain details regarding costing, timelines or the treatment of sludge on site. Chieftain Metals failed to submit this outstanding information by the October 2018 deadline; resulting in the Chief Inspector of Mines issuing a final letter documenting the outstanding Orders issued as well as continued non-compliance. The Chief Inspector of Mines indicated that the mine was considered a closed mine as per the definitions under the *Mines Act*.

The Government of B.C. subsequently issued a Request for Proposals (RFP) for the development of a Remediation and Reclamation Plan for the mine in November 2018. The RFP specified that the final report must include: a site hazard assessment; a risk analysis; clear identification of various remediation methodologies for each mine component; and a detailed estimation of costs to implement the remediation activities.

In January 2019, representatives from the Government of B.C. participated in a collaborative RFP review process with representatives from the TRTFN. All parties arrived at a consensus recommendation and SNC-Lavalin was awarded the contract. Throughout 2019, contractors have undertaken data gap analysis and site visits to gather soil and water samples, conduct an inventory of existing hazards on site, undertaken a more thorough

review of existing mine portals and underground workings and contamination pathways. An initial site review has occurred throughout the historic mine area, including the Big Bull mine site, and importantly this work will inform the remediation and reclamation plan going forward.

In fall 2019 a workshop took place amongst the contractors, the Government of B.C., TRTFN and the Alaskan Department of Environmental Conservation for the purpose of aligning remedial options with site data, and addressing risks and opportunities. The final remediation and reclamation plan is anticipated by the end of 2019, which will inform next steps, timelines and costing.

Red Chris Mine

The Red Chris Mine is an open pit copper-gold mine located 80 km south of Dease Lake and 18 km southeast of the village of Iskut, B.C. The project received its environmental assessment certificate in August 2005 and regular production began in June 2015. The mine is currently projected to operate until 2043.

In August 2019, Newcrest Mining Ltd. (Newcrest) acquired a 70 percent joint venture interest in the Red Chris Mine, and Imperial Metals Corporation retains the remaining 30 percent interest. As a part of the transfer, the *Mines Act* permit has been amended to update the deliverable dates for most of the required plans to allow Newcrest time to make revisions to these plans. The Mine Development Committee process is expected to commence in the winter, in order to provide guidance in the development of the revised plans.

Brucejack

Brucejack Mine is wholly owned by Pretivm and is a high-grade gold underground mine located approximately 65km north of Stewart, B.C. and is accessed from Highway 37. Brucejack Mine received its Environmental Assessment Certificate, *Canadian Environmental Assessment Act* approval and a *Mines Act* Permit in 2015. Construction commenced in 2016, with construction of the mine site, a 57km transmission line that connects to Stewart, and a haul road that traverses the Sulphurets Glacier. The mine entered into operations in 2017, with the first production of gold-silver bars in June 2017. A ramp-up in production in 2019 will result in a 14-year life of mine. Ongoing exploration has continued through 2019, targeting deep holes under the Valley of Kings deposit and other underground deposit areas.

Upcoming Events

The Alaska Miners Association 2019 Convention and Trade Show took place between November 3–9, 2019 at the Dena'ina Center in Anchorage, Alaska. More information is available at www.alaskaminers.org/convention-information.

The Alaska Miners Association (AMA), a non-profit corporation headquartered in Anchorage with branches

throughout Alaska, is celebrating their 80th year of advocating for and promoting responsible mineral development in the state of Alaska. Their annual Convention and Trade Show is the largest mining event in the state; offering technical sessions, educational short courses, and networking events throughout the week. The Alaska Department of Natural Resources hosted a booth on the vendor floor.

The 40th annual Alaska Resources Conference took place between November 20–21, 2019 at the Dena'ina Center in Anchorage, Alaska. More information is available at www.akrdc.org/conference.

The Resource Development Council for Alaska, Inc. (RDC) is an Alaskan, non-profit, m embership-funded organization comprised of individuals and companies from Alaska's oil and gas, mining, timber, tourism, and fisheries industries. RDC's purpose is to link these diverse industries together to encourage a strong, diversified private sector and grow Alaska through responsible resource development.

Association for Mineral Exploration (AME) Round-up 2020 is scheduled January 20–23, 2020 at the Vancouver Convention Centre East in Vancouver, B.C. More information is available at roundup.amebc.ca/

AME is the lead association for the mineral exploration and development industry based in B.C. Established in 1912, AME represents, advocates, protects and promotes the interests of thousands of members who are engaged in mineral exploration and development in B.C. and throughout the world. AME encourages a safe, economically strong and environmentally responsible industry by providing clear initiatives, policies, events and tools to support its membership.

The bi-annual Alaska-B.C. Bilateral Working Group (BWG) meeting is scheduled for January 22 2020, and was scheduled to align with AME's Round-up Conference.

The BWG is comprised of Alaskan Commissioners from the Departments of Environmental Conservation, Natural Resources, and Fish and Game, and British Columbian senior officials from the Ministries of Environment and Climate Change Strategy, and Energy, Mines and Petroleum Resources. The BWG meets on a bi-annual basis to oversee the work of their respective staff, as well as provide direction for the subsequent months. The secretariat function rotates between the State and the Province, and currently rests with the latter. The meeting notes are made publicly available and can be found here, along with other B.C.-AK Transboundary related materials.

The Pacific NorthWest Economic Region (PNWER) Annual Summit is scheduled July 19–23, 2020 in Big Sky, Montana.

The PNWER Annual Summit is the leading forum where people in the policy world and the business world come together to figure out solutions to regional challenges. Over 500 regional legislators, business leaders, and key decision makers will come together to explore shared challenges in the region, discuss best practices, strengthen regional relationships, and develop action plans for addressing these challenges in the future.

PNWER is recognized as the model for regional and bi-national cooperation, providing a platform for collaboration among public, private, academic, and non-profit stakeholders to work together as a region in pursuit of common goals.

JOINT WATER QUALITY MONITORING PROGRAM FOR TRANSBOUNDARY WATERS

Program Description and Two-Year Work Plan[1]

Context

In accordance with the Statement of Cooperation (SoC), British Columbia (BC) and Alaska (AK) propose a Transboundary Waters Monitoring Program and two-year Work Plan including the scope, elements and funding of a defined coordinated monitoring effort. These documents describe a process for the collection, summary and distribution of baseline water quality and quantity data and for monitoring the condition of fish and other aquatic life potentially impacted by pollutants in Transboundary Waters.

Geographical Scope

The Alsek, Taku, Stikine, and Unuk rivers.

The Technical Working Group on Monitoring (TWG-M) identified that development is not occurring or planned in the Alsek watershed in BC or AK and recommends focusing efforts on the Taku, Stikine, and Unuk rivers where upstream industrial development has occurred, is occurring, or is planned.

Program Outreach

The members of the TWG-M engaged with Tribes, First Nations, Nisga'a Nation, state and federal agencies, provincial and federal ministries, non-governmental organizations and the general public informally by phone and email and formally at:

- The Alaska Transboundary Environmental Data Workshop held in Juneau in April 2016;
- The Alaska Forum on the Environment held in Anchorage February 2016 and 2017;
- Meetings in Juneau and Ketchikan in March 2017 to review SoC goals and identify concerns;
- Meetings in Juneau in April 2017 to review SoC goals, discuss collaborative opportunities, and leverage resources; and
- Workshop in Juneau in May, 2017 to provide an update on efforts under the SoC and an opportunity for input on the preliminary draft monitoring program description and two-year workplan.

Program outreach revealed Tribes and stakeholders desire to understand both the existing environmental conditions in transboundary waters and the potential for upstream Canadian mining and industrial activities to impact Alaska's downstream Taku, Stikine, and Unuk water quality, water quantity, and fish resources.

[1] This document was prepared for Bilateral Working Group review and was approved on October 5, 2017. This document forms Attachment 1 to the BC/AK SoC.

Coordination
BC and AK will coordinate with Tribes, First Nations, Nisga'a Nation, state and federal agencies, provincial and federal ministries, non-governmental organizations, and industry, to use resources effectively and minimize duplication when implementing the work plan. To the extent possible, BC and AK will coordinate abiotic and biotic sampling parameters in an effort to ensure data comparability.

Funding
BC and AK may seek funding to complete the work plan through internal budget processes and working in partnership with Tribes, First Nations, Nisga'a Nation, state and federal agencies, provincial and federal ministries, non-governmental organizations, and industry.

Data Collection
Existing
AK hired a non-governmental organization to catalog recent and historic Southeast Alaska transboundary rivers water quality, water quantity and bioassessment data.[2]

BC inventoried recent and historic water quality, water quantity and bioassessment monitoring information and conducted a review of federal and provincial water quality agreement trend monitoring stations, provincial biomonitoring programs, provincial *Environmental Assessment Act* and *Environmental Management Act* applications and authorizations. BC has implemented issue-specific environmental impact assessment studies, such as the 2016 Tulsequah Chief Aquatic Ecological Risk Assessment.

Additional data collection is on-going through Central Council Tlingit and Haida Indian Tribes of Alaska (Central Council), United States USGS gaging stations, and Canadian hydrometric stations.

Central Council is conducting a Traditional Ecological Knowledge survey related to transboundary rivers, in cooperation with AK.

Future
AK is implementing the Alaska Monitoring and Assessment Program[3] in Southeast Alaska to describe aquatic conditions across the region. Staff began sampling lakes in 2017, and will sample rivers and streams in 2018 and 2019. In addition to the Environmental Protection Agency protocol for a spatially balanced survey design across the region, the program allows survey intensification[4] in special interest areas, like the Taku, Stikine, and Unuk rivers, while supporting correct statistical analysis of combined larger area and special interest area data. Staff will survey coastal waters, and may survey wetlands, in 2020 and 2021.

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[2] AK is developing a quality assurance program to address data evaluation.
[3] The Alaska Monitoring and Assessment Program, referred to as AKMAP, is part of a nationwide Environmental Protection Agency effort to survey the environmental condition of United States ecological resources.
[4] Intensification of AKMAP Lake, River and Stream survey include additional monitoring locations and parameters. Additional parameters include total and dissolved metals in the water column and sediment, periphyton (unfunded), and fish tissue sampling.

AK will apply for a Pacific Salmon Commission Northern Fund grant to sample Stikine and Unuk river juvenile Dolly Varden char whole body metals concentrations. If the grant application is approved, metals data from 120 fish will be compared to Taku River and AK statewide datasets.

BC will conduct supplemental water quality monitoring projects in transboundary watersheds. BC will also expand its Biomonitoring Network, which employs the federally developed and supported Canadian Aquatic Biomonitoring Network (CABIN) protocols to measure change in biological communities to assess freshwater ecosystem health. Additional biomonitoring will include measuring metals concentrations in fish tissues to build understanding of potential impacts of pollutants from industrial activities in the watersheds.

BC will implement industry validation projects as part of the two year work plan. These projects will be in addition to industry sampling efforts and will validate data collected by industry, and may include additional sampling, split sampling, and review of lab and field Quality Assurance data.

Deliverables
In the fall of 2018, the TWG-M will provide the Bilateral Working Group a draft Program report summarizing monitoring activities.

In the fall of 2019, the TWG-M will provide the Bilateral Working Group a final Program report summarizing existing data, data gaps, and data collected during the two-year work plan.

The TWG-M will meet quarterly to ensure continued BC and AK collaboration and information sharing as described in the SoC Communications Plan.

Two-year Work Plan

All Watersheds

<table>
<tr><th>Background Info</th><th>Project Lead</th><th>Spring/Summer 2017</th><th>Fall/Winter 2017/18</th><th>Spring/Summer 2018</th><th>Fall/Winter 2018/19</th><th>Spring/Summer 2019</th><th>Fall/Winter 2019/20</th></tr>
<tr><td rowspan="7">Continue to engage, collaborate and consult with Tribes, First Nations, Nisga'a Nation, industry, environmental non-governmental organizations, public, and federal agencies.</td><td rowspan="7">BC/AK</td><td>Continue to engage with Tribes, First Nations and stakeholders in BC and Alaska</td><td colspan="5">Engagement: ongoing</td></tr>
<tr><td colspan="2">Collaborate to identify existing data sources from other agencies</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Collaborate to identify potential funding sources / partnerships</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Collaborate on survey methods, parameters, and analysis</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Collaborate on the collection, documentation, and sharing of traditional ecological knowledge.</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Publication of monitoring results – ongoing</td></tr>
<tr><td></td><td></td><td></td><td>Mid-point Report: Review and summarize monitoring actions</td><td></td><td>Final Report: Review and summarize monitoring actions and results.</td></tr>
</table>

ALSEK

<table>
<tr><th>Background Info</th><th>Project Lead</th><th>Spring/Summer 2017</th><th>Fall/Winter 2017/18</th><th>Spring/Summer 2018</th><th>Fall/Winter 2018/19</th><th>Spring/Summer 2019</th></tr>
<tr><td rowspan="3">There is no current mining or other industrial activity in the BC portion of the Alsek watershed. We are not aware of planned mining or other industrial development in the reasonably foreseeable future.</td><td>BC</td><td colspan="5">Four Water Survey of Canada hydrometric stations</td></tr>
<tr><td rowspan="2">AK</td><td colspan="5">USGS gage station: stage, discharge, water chemistry</td></tr>
<tr><td>AKMAP Southeast Alaska region wide survey</td><td></td><td>AKMAP Southeast Alaska region wide survey</td><td></td><td>AKMAP Southeast Alaska region wide survey</td></tr>
</table>

	Existing monitoring program

Taku

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019
The Tulsequah-Chief mine is in receivership and discharging to the Tulsequah River, a tributary to the Taku.	BC			Baseline water quality monitoring on Taku & Tulsequah Rivers		
		Baseline water quality and sediment quality monitoring.		Baseline benthic invertebrate monitoring		
				Fish tissue sampling on main-stem Taku		Fish tissue sampling on main-stem Taku
	AK	Central Council of Tlingit and Haida Indian Tribes of Alaska Transboundary Monitoring Project, two locations (USGS gage station and confluence Goat Creek): water chemistry, dissolved and total metals				
		USGS gage station: stage, discharge, water chemistry				
		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey
		Intensification of AKMAP Lake survey		Intensification of AKMAP Rivers and Streams survey		Intensification of AKMAP Rivers and Streams survey

Stikine

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019
The Red Chris Mine is in operation in the sub-watersheds of the Iskut and Klappan.	BC	Three current Water Survey of Canada hydrometric stations				
		Current federal-provincial water quality monitoring station on the Iskut River (sub-watershed)				
		Red Chris Mine; *Environmental Management Act* authorization aquatic effects monitoring program: benthic invertebrates, periphyton, water quality, sediment quality, physical habitat assessment, fish tissue (lakes program includes three years of sampling for selenium)				
				Baseline water quality monitoring on main-stem Stikine		
				Industry data validation (Red Chris)		
		Baseline water quality and sediment quality monitoring.		Baseline benthic invertebrate monitoring		
				Fish tissue sampling on main-stem Stikine		Fish tissue sampling on main-stem Stikine
	AK	Central Council of Tlingit and Haida Indian Tribes of Alaska Transboundary Monitoring Project, 2 locations (USGS gage station and confluence Goat Creek): water chemistry, dissolved and total metals				
		USGS gage station: stage, discharge, turbidity, water chemistry				
		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey
		Intensification of AKMAP Lake survey		Intensification of AKMAP Rivers and Streams survey		Intensification of AKMAP Rivers and Streams survey

	Existing monitoring program
	Proposed supplemental monitoring (BC) / program intensification effort (AK)

Unuk

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019
The KSM Project is in pre-application (permitting) and Brucejack Mine is operating.	BC	Two hydrometric stations associated with Brucejack Mine; ten hydrometric stations associated with the KSM Project				
		Brucejack Mine *Environmental Management Act* authorization aquatic effects monitoring program: water quality, benthic invertebrates, sediment quality, periphyton				
		KSM Project *Environmental Management Act* authorization aquatic effects monitoring program: water quality, benthic invertebrates, sediment quality, periphyton, selenium bioaccumulation project associated with KSM concludes in 2018				
				Industry data validation (KSM/Brucejack)		
				Fish tissue sampling on main-stem Unuk		Fish tissue sampling on main-stem Unuk
	AK	Central Council of Tlingit and Haida Indian Tribes of Alaska Transboundary Monitoring Project, 2 locations (historic USGS gage station and confluence Blue River): water chemistry, dissolved and total metals				
		USGS gage station: stage, discharge, turbidity, water chemistry				
		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey
		Intensification of AKMAP Lake survey		Intensification of AKMAP Rivers and Streams survey		Intensification of AKMAP Rivers and Streams survey

	Existing monitoring program
	Proposed supplemental monitoring (BC) / program intensification effort (AK)

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Withheld pursuant to/removed as

s.13; s.14; s.17; s.12

Page 079 of 173

Withheld pursuant to/removed as

s.16

Opinions

Alaska is fully engaged in transboundary water, mining issues

Author: **Corri Feige | Opinion, Doug Vincent-Lang | Opinion, Jason Brune | Opinion**

Updated: July 14

Published July 14

Environmental Cooperation Agreement

Between the Province of British Columbia and The State of Washington

WHEREAS the Province of British Columbia and the State of Washington are committed to ensuring a consistent and high-level of environmental quality for their citizens; and

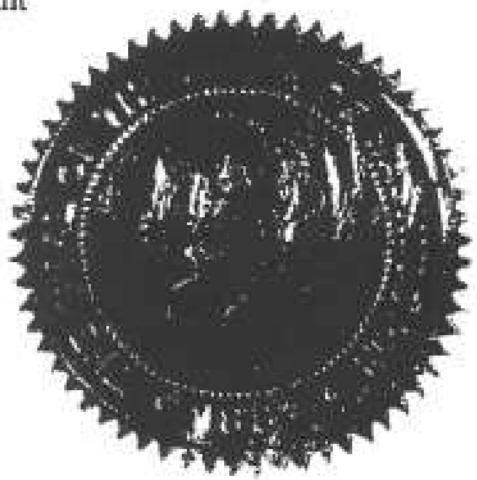
WHEREAS environmental concerns and impacts respect neither physical or political boundaries, and both governments recognize the necessity for joint action on issues of mutual interest; and

WHEREAS the Ministries of the Province and the Executive Departments of Washington wish to share information and to cooperate on environmental matters, are prepared to work together with respect to their responsibilities, and wish to enter into specific cooperation arrangements; and

WHEREAS the increased complexity of environmental issues, particularly their interjurisdictional impacts, requires coordinated responses from both governments;

NOW, THEREFORE, the Province of British Columbia and the State of Washington agree to establish a **British Columbia/Washington Environmental Initiative** to promote and coordinate mutual efforts to ensure the protection, preservation and enhancement of our shared environment for the benefit of current and future generations;

The parties also agree to develop an action plan, which shall form part of these efforts, reflecting mutual priorities and to enter into specific arrangements necessary to address environmental problems.



DATED AT Olympia Washington, United States of America,
This 7 TH day of May, AD 1992.

Mike Harcourt, Premier
Province of British Columbia

Booth Gardner, Governor
State of Washington

BRITISH COLUMBIA/WASHINGTON ENVIRONMENTAL INITIATIVE

Terms of Reference

Mandate/Purpose:

The Initiative's mandate is derived from the Environmental Cooperation Agreement between the two jurisdictions entered into in May 1992. The Initiative's purpose is to ensure coordinated action and information-sharing on environmental matters of mutual concern.

Members: Deputy Minister, BC Environment, Lands and Parks
Director, Washington Department of Ecology

Observers: Regional Director General, Pacific and Yukon Region, Environment Canada
Administrator, Region 10, US Environmental Protection Agency

Support:

Administrative support will be provided by BC Environment, Lands and Parks and the Washington Department of Ecology who will be jointly responsible to prepare agendas, ensure appropriate attendance at Initiative meetings and coordinate follow-up action.

Procedures:

- The Initiative will generally meet twice each year, or as necessary.
- The Initiative may establish sub-committees to deal with specific matters.
- The Initiative may, by formal agreement, establish Task Forces to address issues of special or major significance.
- An Annual Report will be made to the Premier of British Columbia and the Governor of Washington.

BRITISH COLUMBIA/WASHINGTON ENVIRONMENTAL INITIATIVE

Preliminary Action Plan/Work Priorities

British Columbia and Washington's commitment to cooperative efforts on environmental matters has resulted in the identification of the following priority issues for action:

1. Georgia Basin/Puget Sound Water Quality Initiative

   Georgia Basin/Puget Sound water quality is considered to be a **high priority issue** and requires immediate joint attention.

   Concerted efforts are underway by both governments to identify and remedy pollution problems in the Georgia Basin and Puget Sound. Coordination of these programs will enhance their environmental benefits.

2. Columbia River/Lake Roosevelt Water Quality

   Columbia River/Lake Roosevelt Water Quality is considered to be a **high priority issue** by both parties and requires immediate joint attention.

   A task force involving affected interest groups will examine the issues and ensure necessary action is taken to control sources and protect water quality.

3. Nooksack River Flooding

   Nooksack River flooding is considered to be a **high priority issue** and requires continued joint attention.

   Recent flooding in Washington's Nooksack River resulted in flooding in British Columbia's West Sumas area. Continued attention is needed to ensure implementation of the recommendations of a Task Force that identified actions needed to avert recurrence of such problems.

4. Regional Air Quality Management

   Regional air quality management is considered to be a **high priority issue** in the Georgia Basin/Puget Sound airshed and requires timely joint attention.

   Issues such as transboundary flows of sulphur dioxide, nitrogen oxides and volatile organic compounds should be addressed in an integrated manner through regional implementation of the Canada/U.S. Air Quality Agreement.

5. Coordinated Groundwater Management (Sumas-Abbotsford)

Management of the groundwater in the Sumas-Abbotsford area is considered to be a **high priority issue** and requires immediate joint attention.

The aquifers are of particular concern as a result of domestic use on both sides of the border. Improved coordination of the activities of all parties to address both groundwater quantity and quality will encourage more effective resolution.

6. Solid, Hazardous and Biomedical Waste Cooperation

Waste management is considered to be an **emerging issue** and should be the subject of information exchange and further discussion. The transboundary impacts of waste management practices and contaminated sites should be examined through mechanisms such as the Memorandum of Understanding on Hazardous Waste Management.

7. Water Resource Management

Water management in general is considered to be an **emerging issue** and should be the subject of information exchange and further discussion.

Increased water use in response to growing needs necessitates protection of instream flows; this requires sound data and thorough field investigations. Joint efforts can ensure efficiency and maximum productivity for both governments.

8. Wetlands Protection

The protection of wetlands and wildlife habitat is considered to be an **issue of ongoing interest** to both parties. The exchange of information on wetland and habitat protection programs will form the basis for initial cooperation on this issue.

9. Other Issues

The parties agree to use the Initiative to identify and address issues of concern, and will assist each other in dealing with the agencies and departments of their respective governments. Potential issues for discussion include: earthquake and emergency preparedness and State of Environment reporting.

British Columbia – Washington

Memorandum Of Understanding

on

Advancing the Innovation Economy, Environmental Protection and Transportation Connectivity

Preamble:

In recognition of the long-standing special relationship between the Province of British Columbia and the State of Washington, we jointly advance this Memorandum of Understanding to identify and define areas of future cooperation that will further the innovation economy, environmental protection and transportation connectivity.

Guiding Principles:

- We share unique geographic, social and economic bonds that have deep historical roots.
- We recognize the prior existence, ongoing presence and inherent rights of Indigenous peoples and respect their cultures, spiritual traditions, histories, laws and philosophies.
- We also recognize that both the governments of Canada and the United States of America have endorsed the United Nations Declaration on the Rights of Indigenous Peoples and that we share an interest in exploring opportunities to advance its implementation through cooperation between our two jurisdictions.
- We will explore the role and involvement of Indigenous partners in our collaboration areas to ensure our collaboration is inclusive of Indigenous perspectives.
- We enjoy a long-standing, positive relationship and a history of productive and effective collaboration between the two jurisdictions.
- We share a desire to foster and further strengthen cooperation to promote innovation, protect our environment and improve connectivity between our jurisdictions.
- We recognize that climate change is one of the greatest existential threats to British Columbia and the State of Washington, and reaffirm our commitment to meaningful action.
- We understand that improved connectivity, trade and the efficient flow of people and goods across our shared border is critical for economic growth and affordability.
- We value joint action and collaboration in research, education, workforce development, environmental protection, climate change, transportation, trade and investment.
- We recognize real progress that has been made to further strengthen the Cascadia Innovation Corridor, including improved transportation linkages, research and academic partnerships and cross-border trade and investment, and are excited about potential for the future.

- We believe public and private sector leaders in both countries are committed to working closely to strengthen connections across this region, share best practices and create opportunity throughout the region.
- We believe both jurisdictions boast proud histories and a spirit of creativity, innovation and entrepreneurship.
- We believe the region shares a commitment to promoting environmental sustainability, celebrating cultural diversity and inclusion, and building collaborative working relationships.

WE HEREBY AGREE

To enhance meaningful and results-driven collaboration in the following areas:

Innovation Economy

- Facilitate trade and access to capital and foster stronger ties across the region.
- Encourage partnerships that focus on life sciences, financial and retail innovation, clean technology and transformative technologies such as artificial intelligence, cloud computing, blockchain and virtual/mixed reality.
- Explore opportunities to advance joint research programs in key areas of innovation and future technologies among the region's major universities and institutes.
- Endorse training and education programs that seek to increase access to innovation jobs across B.C. and Washington State, particularly for at-risk communities.
- Meet with the Cascadia Innovation Corridor steering committee or their leadership on an annual basis, and appoint a liaison from each jurisdiction to engage with the committee on an ongoing basis.

Environmental Protection

- Reaffirm our commitment to meaningful action on climate change and advance policies that support low-income and vulnerable populations that are disproportionately impacted.
- Protect our coastal communities and shared marine ecosystem.
- Work together, with Indigenous peoples, and with the Canadian and U.S. federal governments, to protect our iconic and endangered Southern Resident Killer Whales.
- Work with partners to restore and sustain the salmon population.

Transportation Connectivity

- Continue, and further strengthen joint transportation planning efforts, focused on improved connectivity and ease of travel and movement, including at the border.
- Encourage continued seaplane service between Seattle and Vancouver, B.C.
- Continue support for the business case analysis of a new ultra high speed corridor between Portland, Seattle and Vancouver B.C., with speeds as high as 250 mph (400 km/h), and begin exploring the possibility of a new multi-jurisdictional Ultra High Speed Corridor authority that could lead the project in any agreed-upon subsequent phase(s).

Regular Coordination

- The parties agree to convene a leadership meeting within one year, to evaluate progress on the above areas and identify additional areas for enhanced collaboration.
- The parties agree to appoint a representative from each office to coordinate and oversee implementation of this agreement.

Term and Effect

This MOU shall come into effect upon signature by the two parties and shall remain in effect for a period of five years and can be renewed or amended with the consent of the parties.

Either party may decide to terminate the agreement by notifying the other party with three months' written notice.

Limitations

The undersigned signatories agree that this MOU shall have no legal effect or impose a legally binding obligation on either the Province of British Columbia or the State of Washington. Neither party shall be responsible for the actions of third parties who may participate in the activities outlined in this MOU.

AGREED AND SIGNED AND DATED IN TWO ORIGINALS IN VANCOUVER, BRITISH COLUMBIA, THIS 10TH DAY OF OCTOBER, 2018.

For the Province of British Columbia

John Horgan, Premier

For the State of Washington

Jay Inslee, Governor

MEMORANDUM OF UNDERSTANDING
BETWEEN THE WASHINGTON STATE DEPARTMENT OF ECOLOGY
AND
THE BRITISH COLUMBIA ENVIRONMENTAL ASSESSMENT OFFICE

WHEREAS

A. The Environmental Cooperation Agreement of May 7, 1992 between the Province of British Columbia and the State of Washington directed the parties to coordinated action and information sharing between the Province and the State on environmental matters of mutual concern;

B. The Memorandum of Understanding of April 1996, between the Department of Ecology (Ecology) and the British Columbia Ministry of Environment Lands and Parks (MELP) committed the Province and the State to make efforts to share information, consult with one another, and coordinate their work on environmental issues that affect resources and residents in the border region, and to include the regional office of the other jurisdiction in the distribution of environmental assessments for certain major projects;

C. The State of Washington and the Province of British Columbia recognize each other's authority and responsibilities to conduct or require, where appropriate, an environmental assessment/environmental review (EA/ER) of project proposals within their jurisdiction;

D. The State of Washington and the Province of British Columbia each have established processes for the EA/ER of certain projects within their respective jurisdictions;

E. The Province of British Columbia, as represented by the Environmental Assessment Office (EAO), and the State of Washington, as represented by Ecology, support a Memorandum of Understanding between the parties specific to inter-jurisdictional cooperation on information sharing about the practice of EA/ER in each jurisdiction, and notification and information exchange related to major project proposals in the vicinity of the other jurisdiction;

F. In the State of Washington, Ecology is a lead agency for the EA/ER of some major projects; however, EAs/ERs may be led by another state agency or a local government authority, and Ecology does not coordinate EAs/ERs led by another agency or a local government authority;

G. In the Province of British Columbia, the EAO directs the EA/ER of major projects.

H. The Memorandum of Understanding was first signed off by the parties on June 20, 2001.

I. On December 30, 2002 the new British Columbia *Environmental Assessment Act* came into force. Changes to the environmental assessment process due to the new legislation made it necessary to amend Section 3.1(ii) in the original Memorandum of Understanding and provide a new description of the British Columbia EA process.

THEREFORE, EAO AND ECOLOGY MUTUALLY UNDERTAKE AS FOLLOWS

IT IS THE PURPOSE OF THIS MEMORANDUM OF UNDERSTANDING (MOU) TO:

1. Facilitate information sharing and mutual understanding of the EA/ER laws, policies and processes of each jurisdiction and facilitate full knowledge of changes; and

2. Facilitate notification and information exchange regarding major project proposals that are in the vicinity of the other jurisdiction.

THIS MOU APPLIES TO THE FOLLOWING MAJOR PROJECTS THAT ARE IN THE VICINITY OF THE OTHER JURISDICTION:

1. A major project proposal in British Columbia is considered to be in the vicinity of the State of Washington if it is located 100 kilometres or less from the border between the two jurisdictions;

2. A major project proposal in the State of Washington is considered to be in the vicinity of British Columbia if it is located in any of the following counties within the State of Washington: Clallam, Jefferson, San Juan, Island, Whatcom, Skagit, Chelan, Okanogan, Ferry, Stevens and Pend Oreille.

IT IS MUTUALLY AGREED THAT:

1. Definitions

IN THIS MEMORANDUM OF UNDERSTANDING (MOU)

1.1 "major project" means, for a project located in British Columbia, a reviewable project as defined in section 1 of the British Columbia *Environmental Assessment Act* (EA Act), and for a project located in Washington State, a project subject to state jurisdiction under the *State Environmental Policy Act* (SEPA) for which a Determination of Significance has been made thereby requiring an environmental impact statement;

1.2 "parties" means the State of Washington represented by the Department of Ecology (Ecology) and the Province of British Columbia represented by the Environmental Assessment Office (EAO).

2. Mutual Understanding of the EA/ER Laws, Policies and Processes

2.1 Each party will provide the other with information on its EA/ER process for major projects within its jurisdiction to facilitate mutual understanding of the EA/ER laws, policies and processes of each jurisdiction;

2.2 Each party will provide the other with information in a timely manner on any changes to the EA/ER laws, policies and processes of its jurisdiction that may affect the other jurisdiction.

3. Notification of Major Project Proposals and Information Exchange

3.1 Each party will provide notification to the other party of major project proposals that are in the vicinity of the other jurisdiction as follows:

(i) Ecology will provide notification about major project proposals that are in the vicinity of British Columbia by:

- on a weekly basis, forwarding to the EAO a list of all project proposals that are located in the vicinity of British Columbia for which a Determination of Significance/Scoping Notice has been issued; and
- posting information on the SEPA Register on Ecology's website in a form that is specifically sorted to identify projects that are located in the vicinity of British Columbia; and
- when Ecology is the lead agency for the proposal, providing written notice to the EAO as early as possible but no later than the time when a Determination of Significance/Scoping Notice is issued;

(ii) EAO will provide notification about major project proposals that are in the vicinity of the State of Washington by:

- providing written notice to Ecology as early as possible in the EA/ER process following issuance of an order under Section 10 of the British Columbia *Environmental Assessment Act* specifying that an environmental assessment certificate is required for the project, and
- ensuring information about major project proposals in the vicinity of Washington State is posted on the EAO website;

3.2 Each party will provide information on the EA/ER of a major project proposal in its jurisdiction, including information on opportunities to provide comment on the proposal, upon request from the other party;

3.3 The parties will work together to develop mechanisms for notifying and consulting with members of the public who may have an interest in a major project proposal.

4. Consideration of Comments

4.1 Each party will consider any comments received from the other jurisdiction about the potential effects of a major project proposal that is in the vicinity of the other jurisdiction prior to making any decisions regarding project approval;

4.2 For a major project proposal located in Washington State, comments will be submitted directly to the designated lead agency for the EA/ER of that proposal;

4.3 For a major project proposal located in British Columbia, comments will be submitted directly to the EAO.

5. Coordination with Other Arrangements

5.1 In implementing this MOU, existing bilateral arrangements related to joint management of the shared environment will be considered in order to support coordination and consistency with those other arrangements.

6. Dispute Resolution

6.1 In the spirit of cooperation and the efficient use of public resources, the parties will make reasonable efforts to resolve disputes arising in relation to this MOU at the lowest possible staff level through implementation planning, cooperation and consultation. Issues will be elevated to more senior management levels within each jurisdiction as needed to achieve timely resolution;

6.2 In the event of a dispute arising in relation to the technical aspects of the EA/ER of a specific major project, the parties will inform senior management levels in a timely manner and obtain direction on resolving the dispute.

7. Administration

7.1 The parties may continue existing administrative arrangements or enter into new administrative arrangements in order to implement their commitments under this MOU.

8. Term of this MOU

8.1 This MOU shall be effective when signed by both parties. It may be amended at any time by concurrence of the parties and may also be terminated by either party upon thirty (30) days written notice to the other.

Dated at Victoria, BC

This _31_ day of __October___, 2003

Original Signed by

_____

Joan Hesketh
Deputy Minister and Executive Director
British Columbia Environmental Assessment Office

Dated at Olympia, Washington

This _7__ day of _November_, 2003

Original Signed by

_____

Linda Hoffman
Director
Washington State Department of Ecology

Memorandum of Understanding and Cooperation on

Environmental Protection, Climate Action and Energy

between

The Province of British Columbia

and

The State of Montana

The Province of British Columbia and the State of Montana,

Sharing a common border and desiring to renew and deepen our long-standing relationship of friendship and trust;

Acting on the obligation of our *Environmental Cooperation Arrangement* of 2003 "to identify, coordinate and promote mutual efforts to ensure the protection, conservation and enhancement of our shared environment for the benefit of current and future generations" and to "enter into specific arrangements necessary to effectively address shared environmental goals";

Recognizing the mutual commitment of British Columbia and Montana to sustaining environmental values in the transboundary Flathead River Basin, including its existing high water quality and aquatic biodiversity, and threatened and endangered species and species of special concern listed under United States and Canadian law;

Recognizing that the transboundary Flathead River Basin includes within its area Glacier National Park and Biosphere Reserve which is part of the world's first International Peace Park and a World Heritage Site, and that this unique area merits special protection in particular from risks posed by drilling, mining and other commercial mineral and oil and gas development;

Recognizing that the transboundary region is also an important wildlife corridor that is home to the highest density of large and mid-sized carnivores and the highest diversity of vascular plant species in the United States, and offers superior opportunities to study, document and preserve species biodiversity as changing climate conditions and shrinking glaciers present adaptation challenges;

Recognizing that the Flathead River Basin in British Columbia is located within that portion of the Ktunaxa territory known as Qamna district; that the Ktunaxa have a documented historical connection to the Flathead, have used and continue to use the Flathead for hunting, fishing, trapping, gathering, recreation and as a travel corridor, and hold an important cultural and historical connection to the landscape; that the Ktunaxa exercise aboriginal rights recognized in Canada's *Constitution Act, 1982*, within this portion of the Ktunaxa territory; that through the New Relationship with First Nations, British Columbia is seeking to engage meaningfully with Ktunaxa Nation in a government-to-government relationship; that Ktunaxa Nation is engaged in treaty negotiations with Canada and British Columbia which may result in Ktunaxa Nation owning lands and having law-making powers in relation to lands within the Flathead River Basin in Canada; and that this Memorandum of Understanding and Cooperation (MOU) and Ktunaxa Nation's support for and participation in activities under this MOU is without prejudice to treaty negotiations with Ktunaxa Nation or any other agreements that may be negotiated between Ktunaxa Nation and British Columbia;

Recognizing that the Flathead River flows through the exterior boundaries of the Flathead Reservation and aboriginal territories, and that a large portion of Flathead Lake lies within the exterior boundaries of the Flathead Reservation, and that Flathead Lake is the largest freshwater lake in the western coterminous United States and one of the cleanest in the world; and that the Salish, Kootenai, and Pend d'Oreille peoples highly value this land and these waters and their quality and purity, and that these Indigenous Peoples have effectively managed these waters and lands for thousands of years previously in a sustainable and non-polluting manner;

Recognizing that the Flathead River Basin is the subject of uses that are important to local residents, and that for approximately 70 years the British Columbia Flathead River Valley has been successfully managed for logging, recreation, guiding and outfitting, and trapping, that has maintained the healthy and diverse eco-system that exists today;

Concerned that climate change is having and will have severe environmental and economic impacts on our shared waters, ecosystems, protected areas and jurisdictions in coming decades, and *agreed* therefore that action now is both a moral and economic imperative;

Committed to partnering to capture for our citizens the new employment and investment opportunities that action on climate change will create in the areas of renewable and low carbon energy, energy conservation, and clean transportation;

Agreed that the full engagement of our provincial and state governments with our respective federal governments, Ktunaxa Nation, Confederated Salish and Kootenai Tribes, and local governments and the support of local residents and citizens is crucial to acting on these concerns and enhancing a collaborative conservation ethic; and

Committed to sharing information and communicating regularly to improve understanding, prevent degradation of water quality and reach mutually beneficial outcomes on environmental protection, climate action and clean and renewable energy;

Now Therefore Desire to Enter into this Memorandum of Understanding and Cooperation and Hereby Agree As Follows:

Environmental Protection

I. British Columbia and Montana commit to work together to:

A. Remove mining, oil and gas, and coal development as permissible land uses in the Flathead River Basin.

British Columbia and Montana, the latter working with the United States as necessary, will implement measures necessary to prohibit the exploration for and development of mining, oil and gas, and coal in the British Columbia Flathead and the Montana North Fork Flathead River Basin, such action to be completed by July 2010, and subject to agreement on the equitable disposition of the financial implications of this action for the Province of British Columbia respecting existing mining and coal tenure holders.

B. Cooperate on fish and wildlife management.

In collaboration with Ktunaxa Nation and Confederated Salish and Kootenai Tribes, develop baseline resource information, identify potential opportunities to collaborate on fish and wildlife management, and, where possible, coordinate provincial and state management activities in the transboundary region. Areas for consideration include: noxious weed management; management of alien invasive species; and management efforts related to specific fish and wildlife.

C. Collaborate on environmental assessment of any project of cross border significance that has potential to degrade land or water resources.

On a reciprocal basis, provide for on-going involvement of interested federal, provincial, state, and First Nations or American Indian Tribes and their designated scientists, in environmental assessments triggered under provincial or state law or regulation with respect to any development in the British Columbia and Montana transboundary area which holds potential to cause degradation of water quality or land resources, as follows:

i. British Columbia will invite one or more representatives from state, federal and tribal governmental agencies, as appropriate, to participate in Working Groups established for its environmental assessments. Appropriate agencies may include the Montana Departments of Environmental Quality, Fish, Wildlife and Parks, and Natural Resources and Conservation, and the United States Environmental Protection Agency and Department of the Interior, and the Confederated Salish and Kootenai Tribes.

ii. Montana will invite one or more representatives from provincial, federal and Ktunaxa Nation governmental agencies to participate in its environmental assessments. Appropriate agencies may include the British Columbia Ministry of Environment, Ministry of Forests and Range, Integrated Land Management Bureau, Ministry of Agriculture and Lands and Ministry of Energy, Mines and Petroleum Resources (or such successor Ministries bearing such responsibilities), and Ktunaxa Nation Land and Resources Council.

D. Share information proactively.

Share information proactively, subject to all relevant laws and regulations, exchange authorizations, permits, approvals, licenses, tenures and draft planning documents on proposed projects that have potential cross-border, wildlife or water quality impacts; and develop early notification procedures to identify problems or sources of concern to residents, First Nations, Tribes, or governmental entities in transboundary areas.

E. **Collaborate in responding to emergencies.**
Establish procedures to cooperatively respond to emergencies that have the potential for environmental harm, especially in transboundary areas.

Climate Action

II. British Columbia and Montana commit to work together to:

A. **Facilitate adaptation to climate change.**
Build regional capacity to understand and address the challenges posed by climate change to Western North American jurisdictions by enhancing and coordinating climate monitoring networks, regional centers of applied climate science and regional emergency planning within our jurisdictions.

B. **Promote a wood building culture for climate action.**
Recognizing that a sustainable forest management strategy aimed at both increasing forest stocks and producing an annual sustained yield of timber for wood construction will generate the largest sustained carbon mitigation and economic benefits, enable enhanced building technologies in structural wood designs for residential and industrial construction and wood products in interior and exterior finishing by seeking and supporting appropriate amendments to building codes and encouraging the use of wood in public leasing and public building projects.

C. **Measure progress in reducing greenhouse gas emissions.**
Participate in The Climate Registry, a collaboration between states, provinces and Tribes aimed at developing and managing a common greenhouse gas emissions reporting system with high integrity that will provide an accurate, complete, consistent, transparent and verified set of greenhouse gas emissions data from reporting entities, supported by a robust accounting and verification infrastructure.

D. **Reduce greenhouse gas emissions.**
British Columbia and Montana are signatories to the regional goal set by the Western Climate Initiative of reducing greenhouse gas emissions to 15 percent below 2005 levels by 2020, as well as to ambitious individual provincial and state goals for reducing greenhouse gas emissions by 2020 of 33 percent below 2007 levels by British Columbia and to 1990 levels by 2020 for Montana.

Renewable and Low Carbon Energy

III. British Columbia and Montana commit to work together to:

A. **Pursue cooperative clean and renewable transboundary energy policies.**
Support and seek adoption of cooperative transboundary approaches to creating more renewable and low carbon energy development in western and continental North America including hydropower, solar, wind, geothermal, biomass, and tidal/wave energy.

B. **Harmonize definitions of low impact renewable resources.**
Seek and support common definitions of renewable and low carbon resources in state, provincial and federal legislation and regulations that facilitate trading of renewable energy from hydropower, solar, wind, geothermal, biomass, and tidal/wave energy between all jurisdictions within western and continental North America.

C. **Support the Western Renewable Energy Zones (WREZ) Project.**
Collaborate to ensure the cost-effective and environmentally sensitive development and transmission of renewable and low carbon energy through participation in the Western Governors' Association Western Renewable Energy Zones (WREZ) Project.

D. **Encourage a "Conservation First" Utility Framework.**
Encourage electricity and natural gas utilities to undertake comprehensive conservation potential studies and set goals for implementing demand-side management (DSM) programs. Utilities will be encouraged to prioritize DSM measures to address energy demand growth. British Columbia and Montana will share information on DSM program performance and will cooperate on the development of harmonized approaches for measurement and evaluation.

E. **Leverage energy efficiency through building codes.**
Share information on energy performance standards in building codes, with a view to developing collaborative strategies to improve energy efficiency requirements.

F. **Enable clean transportation solutions.**
Support policies, and share information on standards and best practices to promote biofuels, natural gas, hydrogen, and electricity as transportation fuels, and promote consistent roadside signage for alternative fuel stations.

Partnerships

British Columbia and Montana commit to work together with Ktunaxa Nation, Confederated Salish and Kootenai Tribes, federal and local governments, and with leaders from business, environmental advocates, and scientists to assist with the accomplishment of these goals.

Definitions

For further certainty, "mining" as referred to in this MOU does not include small quarry or sand or gravel operations where the area of activity is two hectares or less, and not more than 20,000 tonnes per annum is removed or to be removed.

Responsible Parties

The Premier of British Columbia and the Governor of Montana are responsible for oversight and implementation of this MOU.

A. The Intergovernmental Relations Secretariat, a branch of the Office of the Premier, is designated lead entity for British Columbia. The Secretariat will act as the lead and coordinating entity, and will call upon provincial agencies for implementation.

B. The Governor's Office is designated the lead entity for Montana. The Governor's Office will act as the lead and coordinating entity, and will call upon state agencies for implementation.

Term and Amendment

This Memorandum of Understanding and Cooperation is effective when signed by both the Premier and the Governor and as specifically provided for in this MOU. It may be amended at any time by agreement between the parties and may be terminated by either party upon one year written notice to the other.

AGREED as to form and content and signed and dated in two (2) duplicate originals in Vancouver, British Columbia this 18th day of February 2010.

GORDON CAMPBELL
Premier of British Columbia

BRIAN SCHWEITZER
Governor of Montana

WITNESSED this 18th day of February, 2010:

KATHRYN TENEESE
Chair of Ktunaxa Nation Council

MICHEL KENMILLE
Council Member, Confederated Salish and Kootenai Tribes

Province of British Columbia

State of Montana

ENVIRONMENTAL COOPERATION ARRANGEMENT

Between the Province of British Columbia and the State of Montana

WHEREAS the Province of British Columbia and the State of Montana are committed to ensuring a consistent and high level of environmental quality for their citizens; and

WHEREAS the State of Montana and the Province of British Columbia share spectacular and priceless regional ecosystems which transcend the international boundary between them; and

WHEREAS both governments recognize that environmental concerns and impacts respect neither geographical nor political boundaries, and that there is significant benefit in cooperation and collaboration on mutual environmental interests; and

WHEREAS the Ministries of the Province and the Executive Departments of the State wish to share information and are prepared to work together with regard to their respective responsibilities, and may wish to enter into specific cooperation arrangements; and

WHEREAS the increased complexity of environmental issues, particularly their inter-jurisdictional impacts, requires coordinated responses from both governments;

NOW, THEREFORE, the Province of British Columbia and the State of Montana undertake to establish the **British Columbia/Montana Environmental Cooperation Initiative** to identify, coordinate and promote mutual efforts to ensure the protection, conservation and enhancement of our shared environment for the benefit of current and future generations.

ACCORDINGLY, the parties will develop an action plan within one year of signing this arrangement which will form part of these efforts, reflecting mutual priorities. The Parties may also enter into specific arrangements necessary to effectively address shared environmental goals.

DATED at Big Sky, Montana
This 14 day of September, 2003

Gordon Campbell, Premier
Province of British Columbia

Judy Martz, Governor
State of Montana

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Withheld pursuant to/removed as

s.16

BRITISH
COLUMBIA

July 17, 2019

Lisa Murkowski, United States Senator, Alaska
Dan Sullivan, United States Senator, Alaska
Mike Crapo, United States Senator, Idaho
James Risch, United States Senator, Idaho
Jon Tester, United States Senator, Montana
Steve Daines, United States Senator, Montana
Patty Murray, United States Senator, Washington
Maria Cantwell, United States Senator, Washington
522 Hart Senate Office Building
Washington, DC 20510 USA

Dear Senators Murkowski, Sullivan, Crapo, Risch, Tester, Daines, Murray and Cantwell,

Thank you for taking the time to write to me about your work in Congress to pursue constructive engagement with Canada on transboundary watersheds. I am pleased to have the opportunity to detail how my government considers, monitors and oversees resource projects in British Columbia.

The Province and our neighbours in Alaska, Washington, Idaho and Montana share similar values when it comes to the environment and supporting livelihoods in local communities. I am grateful for the strong relationships we have built with your states, where our relationships are predicated on frequent and regular communication. Our governments have established forums to address issues and concerns that arise within our shared transboundary watersheds, and our collective participation in these forums is a positive demonstration of that commitment.

In your letter, you expressed concern about the lack of oversight of mining projects near transboundary rivers that flow into the United States. All mining projects, including those near British Columbia's transboundary rivers are subject to world-leading regulation and oversight. In my government, the Ministry of Energy, Mines and Petroleum Resources (EMPR), the Ministry of Environment and Climate Change Strategy (ENV) and the Environmental Assessment Office (EAO) are collectively responsible for the oversight of mines in B.C. Additionally, a variety of regulatory partners, including our Ministry of Forests, Lands, Natural Resource Operations and Rural Development, federal and local governments, and First Nations have a role in aspects of the oversight of mines. The Government of British Columbia is committed to working closely with our partners in B.C. and in the United States to ensure water quality standards in shared watersheds.

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Office of the Premier

Web Site:
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Mailing Address:
PO Box 9041 Stn Prov Govt
Victoria BC V8W 9E1

Location:
Parliament Buildings
Victoria

The Province has given significant attention, engagement and resources to implement legislative and regulatory changes to strengthen industry safety and oversight. These efforts were most recently emphasized in B.C.'s Budget 2019, in which $20 million of new funding was allocated towards mining oversight. Prior to Budget 2019, the requirements for tailings storage facilities were significantly strengthened, including the requirement for an Independent Tailings Review Board; as well as mandating that all new mines follow modernized and increased safety requirements. All mines in B.C. must also adhere to stringent requirements for tailings storage facilities.

Similarly, my government has strengthened the *Environmental Management Act*, which enables us to recover costs of environmental clean-up directly from the spiller or polluter; clarifies requirements for restoration; and increases penalties for incomplete restoration. We have also passed a new *Environmental Assessment Act* to be implemented in the fall of 2019. The new *Act* includes a number of changes to enhance public confidence, advance reconciliation with First Nations and protect the environment while offering clear pathways to sustainable project approvals. Among the changes are new tools to enhance compliance and enforcement, including administrative monetary penalties of up to $750,000. In addition, the Ministries of Environment and Climate Change Strategy, Energy, Mines and Petroleum Resources, and the Environmental Assessment Office have a Mining Compliance and Enforcement Strategic Plan that outlines B.C.'s vision for achieving enhanced protection of the environment, human health and public safety through an integrated risk-based approach to mining oversight. The Strategic Plan also formalizes the integration and coordination of the three agencies' mining compliance and enforcement efforts. Each of the three agencies have their own compliance and enforcement policies and in 2018 they published a joint "Risk Management Framework for Mining in BC," formalizing how the agencies practice risk management for mining both independently and collectively.

As part of our commitment to true and lasting reconciliation with Indigenous Peoples in British Columbia, my government is fully adopting and implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Calls to Action. Strengthening relationships with First Nations and leveraging Indigenous knowledge and perspectives improves social and economic outcomes for Indigenous Peoples and all British Columbians.

Beyond our internal efforts to increase mining oversight, strengthen regulatory tools and decision-making processes, and deepen engagement with Indigenous Peoples, B.C. is committed to ongoing collaboration, information sharing, engagement and joint-monitoring with our partners in the United States. This collaboration takes place through a number of shared forums and joint working groups that have been established through the bilateral agreements and Memoranda of Cooperation B.C. has signed with Alaska, Washington and Montana. All of these groups are very active and work to address many of the issues raised in your letter in a bilateral manner.

A specific example of the value of these forums is the Tulsequah Chief Mine site approximately 120 kilometers south of Atlin, B.C. on the Tulsequah river. This site has long been the source of historical contamination concerns and an area of strong focus for the collaborative work between

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B.C. and Alaska. My government has advanced efforts to undertake planning for remediation and reclamation of the site; while simultaneously holding past owners jointly and severally liable. We look forward to receiving the site remediation and reclamation plan in November, 2019 and will continue to work closely with our Alaskan neighbours as we progress on this key issue.

Beyond these collaborative government efforts, the mining industry within Canada has taken key steps towards greater compliance and regulation through initiatives such as Towards Sustainable Mining (TSM) which is a performance system that mining companies use to evaluate and manage their environmental and social responsibilities. The TSM was established by the Mining Association of Canada (MAC) in 2004 and helps ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. Since 2004, various mining jurisdictions around the world have adopted TSM for their members, and TSM participation is mandatory for MAC members.

I invite you to review the appendix to this letter which provides a detailed overview of the investments we have made in mining oversight and the accountability measures we have enacted in shared transboundary watersheds, including improved environmental assessment processes, water quality monitoring and regulation of waste discharge. The appendix offers detailed information on the ways in which B.C. and our neighbouring U.S. states are directly engaged in these matters.

Responsible natural resource development and environmental stewardship are priorities for my government. In fact, we recently introduced and are following through on CleanBC, an environmental and economic development strategy that is the cleanest energy plan in Canada and rewards innovative and sustainable practices. I invite our governments and respective agencies to continue working together to develop productive and forward-looking economies by taking advantage of the abundant resources we have been given, while reducing pollution and committing to protecting our air, land and water.

Thank you once again for bringing your concerns to my attention and your leadership in safeguarding our transboundary watersheds.

Sincerely,

John J. Horgan

John Horgan
Premier

Enclosure

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cc: Right Honourable Justin Trudeau, Prime Minister of Canada
Honourable Chrystia Freeland, Minister of Foreign Affairs
Honourable Jonathan Wilkinson, Minister of Fisheries, Oceans and the Canadian Coast Guard
Honourable Catherine McKenna, Minister of Environment and Climate Change
Honourable Carolyn Bennett, Minister of Crown-Indigenous Relations
Mr. Nathan Cullen, Member of Parliament for Skeena-Bulkley Valley
Mr. Fin Donnelly, Member of Parliament for Port Moody-Coquitlam
Mr. Wayne Stetski, Member of Parliament for Kootenay-Columbia
Honourable Doug Donaldson, Minister of Forests, Lands, Natural Resource Operations and Rural Development
Honourable Michelle Mungall, Minister of Energy, Mines and Petroleum Resources
Honourable George Heyman, Minister of Environment and Climate Change Strategy
Honourable Scott Fraser, Minister of Indigenous Relations and Reconciliation

Honourable Mike Pompeo, Secretary of State
Honourable David Bernhardt, Secretary of the Interior
Mr. Chad McIntosh, Office of International and Tribal Affairs, EPA
Mr. Michael J. Dunleavy, Governor of Alaska
Mr. Brad Little, Governor of Idaho
Mr. Steve Bullock, Governor of Montana
Mr. Jay Inslee, Governor of Washington

TECHNICAL APPENDIX

B.C.'S INVESTMENTS AND INITIATIVES

B.C. Budget 2019 $20 Million Investment in Mining Oversight:

This $20 million investment over the next three years establishes separation between the Ministry of Energy, Mines and Petroleum Resources' (EMPR) Mines Competitiveness and Authorizations Division, and the Mines Health, Safety and Enforcement Division. This restructuring and separation of roles aligns with other provincial regulators, including the Ministry of Environment and Climate Change Strategy (ENV), and best-practices across other mining jurisdictions. These new resources are focused on "boots on the ground" mine inspectors and creation of the Audit and Effectiveness Monitoring function, an independent unit tasked with conducting compliance audits and making recommendations to increase effectiveness of regulatory oversight.

Funding also establishes a standing Health, Safety and Reclamation Code review committee with representatives from labour unions, First Nations and mine management. This ongoing review process ensures that mining regulations remain relevant and can address the changing needs of the industry, environment, First Nations and all British Columbians.

Investments & Compliance Tools 2016-2018

Ensuring environmental compliance with regulatory requirements is one of ENV's principal objectives. This is achieved through the use of a variety of compliance tools ranging from promotional activities to advisory letters to court prosecutions, giving consideration to using the most appropriate tool necessary to obtain compliance, and when required, to promote general deterrence. Each situation is assessed on its own merits. The most appropriate response for each situation is chosen based on the best available information.

In 2016 ENV increased its focus on environmental compliance with a $2 million uplift for compliance actions. From 2016 to 2017, the compliance team grew from 28 to 57 staff and has since maintained a staffing level between 45-55. These additional resources support the ministry's objective of environmental compliance through a variety of actions including promoting and assessing compliance in all sectors discharging waste including the mining sector and address non-compliances through a variety of tools including administrative monetary penalties and supporting court prosecutions.

Also in 2015, a position was created to specifically manage compliance work plans for the mining and pulp mill sectors. A team of compliance staff carry out these inspections. As a result, there have been heightened compliance efforts in relation to the mining sector and compliance and enforcement actions have steadily increased since 2016.

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ENV's Compliance and Enforcement Policy and Procedure prescribes common requirements and procedures for all staff to ensure consistent and risk-based assessment and response to non-compliance with management oversight of complex or sensitive investigations. Provincial

inspectors also promote compliance through training, education, outreach and raising awareness of regulatory requirements. The compliance team has allocated dedicated staff to ensure adequate training of the inspectors and to promote compliance activities conducted with regulated dischargers, including the mining industry.

Administrative Monetary Penalties (AMPs) are one of the available tools to achieve compliance. Inspectors are empowered to make a recommendation to a statutory decision maker on whether to administer the penalties, based on observed non-compliance. AMPs administered to mining companies with potential transboundary implications include the following, all of which have been paid:

Year	Company	Operation	Amount
2016	Copper Mountain	Copper Mountain	$4,500
2017	Teck Resources	Line Creek	$52,500
2017	Teck Resources	Line Creek	$13,000
2017	Teck Resources	Line Creek	$12,600
2017	Avino Silver & Gold Mines Ltd.	Bralorne Gold	$73,150
2018	Teck Resources	Greenhills	$22,000
2018	Teck Resources	Elkview	$37,500
2018	Red Chris Development	Red Chris	$14,800

Polluter Pays

ENV and EMPR regulations and policies are based on the polluter pay model. In the context of mining, amendments recently made to the *Environmental Management Act* (EMA) strengthened the ability to recover costs of environmental clean-up, clarified requirements for environmental restoration, and added new penalties for incomplete restoration.

The EMA also provides the Minister with authority to draw from the consolidated revenue fund, if needed, to pay for immediate response to an environmental emergency.

In April 2018, ENV increased waste discharge fees and annual contaminant fees under the *Environmental Management Act* by 21%. This fee increase has boosted the ministry's resources for monitoring and oversight, building on previous investments in ENV's regional offices.

In addition, permit application fees and base annual charges for permit or approval were increased by 100% in April 2018. These fees go into the Sustainable Environment Fund which pays for a large portion of the salaries of staff responsible for authorizations and compliance in B.C.

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Water Quality Monitoring and Regulation of Waste Discharges in B.C. through the *Environmental Management Act*:

ENV is responsible for protecting human health and the environment from pollution under the *Environmental Management Act* and the *Integrated Pest Management Act*. ENV is committed to promoting strong oversight of pollution from major projects in B.C. The tools identified below make up key aspects of B.C.'s approach to water quality monitoring and regulation of waste discharges.

- Applications for permission to discharge waste:
    - The Waste Discharge Regulation defines what industries, activities and operations require authorizations to discharge or release waste to the air, water, and land under the EMA in B.C.
    - B.C. uses a risk-based approach for these applications, meaning that if an application poses a high risk to the environment or human health then it is required to include very detailed information regarding:
        - The environmental setting such as the hydrology and meteorology of the area;
        - Living plants, animals or humans that may be exposed to pollution, (which ENV refers to as receptors);
        - How the applicant proposes to mitigate and/or manage and treat the proposed discharge and any potential exposure to identified receptors;
        - Prediction and assessment of the environmental effects from the proposed discharge; and
        - How the applicant proposes to monitor the activities associated with the proposed discharge.
    - Once a completed application is received and ENV is satisfied that it includes all the necessary information, it goes through a rigorous review by experts in pollution control technologies and environmental impact assessment.
    - After the experts have fully reviewed the application, a comprehensive technical package is prepared for the ministry's statutory decision-maker. This includes recommendations for things like limits on the release of contaminants, requirements for monitoring and reporting, requirements regarding the type of pollution control works and other matters.

- Environmental Impact Assessments (EIAs)
    - As part of B.C.'s assessment of project proposals, EIAs are prepared by third party qualified professionals.
    - An EIA is a detailed study of the environment that would be impacted by a proposed project. EIAs are conducted to determine whether there are, or will likely be, human health or ecological effects from a proposed development or discharge. EIAs include things like:
        - A comparison of the proposed discharge to environmental benchmarks;
        - Identification of impacts to the most sensitive receptors;
        - Consideration of cumulative impacts; and

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        - Modeling and calculations to assess how pollution can be expected to disperse or become distributed in the environment.

    - B.C. is also strengthening governance of qualified professionals, including those who prepare EIAs. Following an independent review of the professional reliance model, B.C. recently passed the *Professional Governance Act* (PGA). The PGA strengthens governance of professionals who work in B.C.'s natural resource sector.
        - The PGA established an Office of the Superintendent of Professional Governance in the Ministry of Attorney General to support government oversight of the regulatory bodies who govern engineers, geoscientists, biologists, agrologists, applied science technologists and technicians, and foresters.
        - The Office will administer and enforce the PGA, develop policy on professional governance, and administer the existing governance statutes of the professions in scope until they are repealed and replaced by regulations under the PGA.
        - The Office will work closely with the regulatory bodies and across government to ensure a smooth transition.

Improvements to B.C.'s Environmental Assessment Processes under the *Environmental Assessment Act*:

- When a major project is proposed in British Columbia, it must undergo an environmental assessment. This process ensures that any potential environmental, economic, social, heritage and health effects that may occur during the lifetime of a major project are thoroughly assessed.
- Environmental Assessments are managed by the B.C. Environmental Assessment Office (EAO), a neutral regulatory agency within the provincial government that works with and seeks input from scientific professionals, Indigenous Peoples, proponents, the public, local governments, and federal and provincial agencies to ensure that no adverse effects are missed.
- B.C. has agreements with Montana, Washington and Alaska regarding projects requiring environmental assessments that may have transboundary effects. These agreements specify opportunities for the U.S. jurisdictions to participate in B.C.'s environmental assessment process.
- In November 2018, a new B.C. *Environmental Assessment Act* (EA Act) was passed and is planned to be implemented in fall 2019.
- The three objectives of the new EA Act are:
    - Enhancing public confidence;
    - Advancing reconciliation with First Nations; and
    - Protecting the environment while offering clear pathways to sustainable project approvals.

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- Specific changes in the new EA Act that support public confidence include:
    - Required matters that must be considered in each environmental assessment, including cumulative effects;
    - Ability to require reports on effectiveness of mitigation measures and update certificates based on the results of those reports; and
    - New tools to enhance EAO's compliance and enforcement program, including administrative monetary penalties up to $750,000.
- Specific changes in the new EA Act that advance reconciliation and support the UN Declaration on the Rights of Indigenous Peoples include:
    - Requirement for the EAO to seek to achieve consensus with participating Indigenous Nations throughout the EA process;
    - Opportunity for participating Indigenous Nations to notify the EAO of consent or lack of consent at two key decision points; and
    - Creation of a time bound, non-binding dispute resolution to help reach consensus, if requested.

Enhancing Transparency

- Ministries continue to enhance transparency through public reporting and have made considerable progress, for example:
    - The joint EAO, EMPR, and ENV BC Mine Information Website includes authorizations, inspection reports, dam safety inspections, emergency response plans and related documents.
    - ENV reports compliance and enforcement actions, as well as inspection reports under the EMA, on the Natural Resources Compliance and Enforcement Database.
    - The Natural Resource Environmental Compliance Twitter account highlights key activities and accomplishments.
    - ENV continues to provide an 'Overview on the Mining Sector' in annual EMA Compliance Reports. This currently provides three years of data to inform trends.
    - Under the B.C. Mining Compliance & Enforcement Strategic Plan the ministries publish an annual operating plan and annual report on progress.
    - EMPR publishes estimated liability and the security held for metal and coal mines in the Chief Inspector of Mines' Annual Reports.

COOPERATION WITH NEIGHBOURING U.S. STATES

Collaboration with Alaska:

- The foundation of the B.C.-Alaska collaboration and commitment to the protection of our shared rivers is captured in the *Memorandum of Understanding and Cooperation between the State of Alaska and the Province of B.C.*, and underpinned by the Statement of Cooperation on the Protection of Transboundary Waters (SoC) and the Bilateral Working Group, to which both B.C. and Alaska are parties.
- Through these agreements, B.C. and Alaska have collaborated to develop a number of initiatives, including:

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  - Establishing the Bilateral Working Group and the Technical Working Group on Monitoring.
  - Developing reciprocal procedures that ensure the State of Alaska has an opportunity to provide input to B.C.'s regulatory processes and decisions, as well as providing the U.S. Environmental Protection Agency and local interest groups in the U.S. to engage with B.C. through Alaska.
    - (For more information on reciprocal procedures please see the Statement of Cooperation on the Protection of Transboundary Waters between Alaska and British Columbia, Attachment 2: Reciprocal Procedures.)

  - Development of a master project list of all mining activities occurring in the transboundary area, which is updated and discussed on a monthly basis.

  - Development of a Communication Plan to enhance transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the transboundary region. This includes a transboundary website that is accessible to the public.
  - Establishing the Joint Water Quality Monitoring Program for Transboundary Waters as a collaborative initiative operating under the guidance of the Technical Working Group on Monitoring. This program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, U.S. Tribes, First Nations and industry.
- B.C. consulted on development of these programs with First Nations in B.C., including the Tahltan Nation and Taku River Tlingit First Nation who have been directly involved with monitoring efforts under the Joint Water Quality Monitoring Program for Transboundary Waters.
- These efforts promote and are dependent upon shared principles of transparency, collaboration and building understanding of each jurisdiction's processes, regulations and interests.
- As part of the implementation of the B.C.-Alaska SoC, B.C. continues to work closely with Alaska to ensure Alaska is involved in the assessment and permitting of existing and proposed mines in the transboundary watersheds including Red Chris, Brucejack, Red Mountain, and Premier.
- Additionally, under the SoC, B.C. and Alaska continue to collaborate on site remediation and reclamation plans for the Tulsequah Chief Mine site.
- B.C.'s goal is to continue to build upon the momentum of these efforts to ensure continued protection and oversight within the transboundary waters we share.

Collaboration with Montana:

- The foundation of B.C.-Montana collaboration on regional ecosystems and shared protection of transboundary waters is captured in the *Environmental Cooperation Arrangement Between the Province of British Columbia and the State of Montana* and

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underpinned by the *Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy*, which also provides for reciprocal opportunities for Montana to participate in B.C.'s environmental assessment process.

- In recent years B.C.'s relationship with Montana has been focused on assessing and managing transboundary impacts from mines in the Elk Valley through the Lake Koocanusa Research and Monitoring Working Group (LKRMWG).
- The LKRMWG is a cross-border forum through which site-specific criteria and water quality guidelines for the Koocanusa Reservoir are discussed and recommended, as well as a forum for discussing cumulative effects in the watershed. It has established common resources for open sharing of data and information by our two jurisdictions.
- The LKRMWG includes representatives from U.S. federal and state agencies, First Nations and U.S. Tribes, stakeholders, industry, non-governmental organizations and experts.
- The LKRMWG is currently working towards the finalizing of a draft water quality objective/criteria for selenium in Lake Koocanusa, targeting completion by 2020. By working closely with Montana and the other LKRMWG members, B.C. is working to establish a common water quality objective/criteria for selenium on both sides of the border. Additional objectives/criteria for other substances could also be developed in the future. (Note the equivalent of B.C.'s water quality objectives are called water quality criteria in Montana).
- Participation and support from First Nations is very important to B.C. Working closely with Montana we have recently expanded the role of representatives from First Nations and U.S. Tribes on a key technical sub-committee. B.C. is also beginning discussions with the Ktunaxa Nation Council to explore pathways for collaborative development of the final water quality objective that will be implemented in the B.C. portion of Koocanusa Reservoir.
- Outcomes of LKRMWG's work will be incorporated into the Elk Valley Water Quality Plan (EVWQP).
    - The EVWQP is an area-based management plan for the Elk Valley. It is intended to stabilize and reverse increasing concentrations of selenium, nitrate, cadmium and sulphate resulting from the operation of Teck's mines in the valley.
    - After ENV approved the EVWQP in 2014, a permit was issued to require Teck Coal to implement the plan.
    - After ENV approved the EVWQP in 2014, a Permit under EMA was issued to require Teck Coal to implement the plan. Amendments to relevant *Mines Act* permits have also been issued to incorporate plan requirements, including adjustments to bonding.
    - The EVWQP includes targeted Site Performance Objectives for each management unit in the watershed, and Compliance Limits set in the EMA permit for each Teck operation at key locations.
    - An implementation plan adjustment is being finalized, which will provide information regarding Teck Coal's plans for continuing to implement treatment facilities to work towards achieving compliance with the targets set out in the EVWQP.

…/8

- In addition, B.C. and Montana recently established the Koocanusa Reservoir Transboundary Monitoring Task Group as a collaborative project. The task group is working to facilitate joint monitoring efforts across the border by addressing logistical and regulatory challenges posed by the international boundary. This two-year project is promoting transparency and shared data between our jurisdictions.
- B.C. and Montana are also working to finalize a Memorandum of Understanding that will provide further guidance and support to the LKRMWG and its members.

Collaboration with Washington:

- British Columbia and Washington State have enjoyed a collaborative working relationship since the creation of the Environmental Cooperation Agreement (ECA) in 1992.
- The ECA and the Environmental Cooperation Council have a successful history of promoting and coordinating mutual efforts to ensure the protection, preservation and enhancement of our shared environment for the benefit of current and future generations.
- The ECA has proven to be a very effective model and was recently renewed in 2018.
- Over the years cooperative efforts have focussed on, but were not limited to, water quality, water resource management, regional air quality, solid and hazardous waste cooperation, wetlands protection and coastal and ocean management.
- In June 2001, the Washington Department of Ecology and the B.C. Ministry of Environment and Climate Strategy (formerly B.C. Ministry of Water, Land and Air Protection) entered into a Memorandum of Understanding (MOU) regarding Environmental Assessments. Under this MOU the state and province make every effort to share information, consult with one and other, and coordinate their work on environmental issues that have the potential to affect resources and residents in the border region.
- In keeping with these agreements, provincial and state regional offices are included in the distribution of environmental assessment notifications for major projects located within 100km or less from the border between the two jurisdictions.

International Joint Commission launches ‘fact-finding mission’ into B.C. transboundary mining

By **Jacob Resneck, CoastAlaska - Juneau**
August 6, 2019

United States Senate

WASHINGTON, DC 20510

October 22, 2019

The Honorable Mike Pompeo
Secretary
U.S. Department of State
2201 C Street NW
Washington, DC 20520

Dear Secretary Pompeo,

We write to again highlight efforts and continued plans of U.S. Congress to protect American interests in the face of potential downstream environmental and economic impacts resulting from large-scale mines in British Columbia, Canada (B.C.). We appreciate the Administration's engagement with Canada to date on this matter, but remain concerned about the lack of oversight of Canadian mining projects near multiple transboundary rivers that originate in B.C. and flow into four U.S. states, Alaska, Washington, Idaho, and Montana.

To address these concerns, we have taken steps in partnership with communities, tribes, and our State government to improve water quality monitoring and push for constructive engagement with Canada. In sharing an update on our efforts, we hope to encourage you, in your role as Secretary, to allocate similar attention, engagement, and resources to collaborative management of our shared transboundary watersheds with Minister Freeland.

In February 2019, we secured additional funding in fiscal year 2019 for transboundary water quality monitoring and the continued work of the interagency working group convened in 2017 by the EPA, State Department, and USGS to address concerns related to B.C. mining activity in shared watersheds.

In June 2019, we led a letter with our Senate colleagues from Idaho, Montana, and Washington to B.C. Premier John Horgan urging attention to and action on key issues related to transboundary mining practices, including encouraging standards of oversight and accountability for B.C. development projects similar to what is required on the U.S. side of the border.

In August 2019, we hosted a roundtable discussion on transboundary issues, bringing together federal, state, tribal, and local leaders as well as visiting Commissioners from the International Joint Commission (IJC), the bilateral panel under the Boundary Waters Treaty between the United States and Canada. The roundtable discussion focused on educating the IJC Commissioners about Alaska's transboundary watersheds, Alaska's water quality monitoring, concerns Alaskans have voiced about upstream mining activity in British Columbia, and actions made by Alaskans to engage with Canadian counterparts to raise such concerns.

It is clear that this Administration takes the protection of American resources very seriously. We therefore urge the Administration, through your Department, to again deliver a strong message in defense of American interests at the U.S.-Canada bilateral meetings in Ottawa this week. We specifically request that the Department's representatives impress upon their Canadian counterparts the critical need for binding protections, joint water quality monitoring, and financial assurances to protect Americans downstream of large-scale Canadian mines, as outlined in numerous letters we have sent to the Department of State.

Additionally, we would like to request that the Director and Deputy Director from the Office of Canadian Affairs provide us with an in-person update after the upcoming semiannual meetings in Ottawa conclude. We appreciate your continued attention to this important matter.

Sincerely,

Lisa Murkowski
United States Senator

Dan Sullivan
United States Senator

Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report

Final

July 2019

Executive Summary

The Nooksack River watershed spans part of the border between British Columbia (BC) and the State of Washington (WA). In August 2018, the international, multi-agency Nooksack River Transboundary Technical Collaboration Group (TCG) was established to implement a three-year work plan to reduce fecal bacteria concentrations in the Nooksack River watershed. As a work plan deliverable, the TCG produced this annual report summarizing first year project activities.

During the past year, BC and WA sampled surface water throughout the Nooksack watershed, including sites located at the international border. Analysis of BC *E. coli* data shows that the 2018 wet season geometric means met the BC Primary Recreation guideline throughout the BC portion of the watershed. For four waterways spanning the international border, BC and WA data analysis noted higher fecal coliform concentrations in Cave and Bertrand Creeks as compared to Pepin and Fishtrap Creeks. Higher fecal coliform and *E. coli* concentrations typically take place during the wet season when soils are saturated or following significant rainfall events.

While the Bertrand Creek's annual fecal coliform geometric mean increased due to high bacteria counts captured in winter 2018-2019, data trends in WA's lower Fishtrap and Bertrand Creeks and in the Nooksack River mainstem show a decline in longer term fecal coliform concentrations since 2015.

The Nooksack River is the largest freshwater source to Portage Bay and to the Lummi Nation's Portage Bay shellfish growing area. From 2014-2016, portions of the Portage Bay growing area experienced a series of harvest restrictions due to poor water quality conditions. By 2016, Washington State Department of Health had downgraded over 800 acres from Approved to Conditionally Approved. The Conditionally Approved portion was closed to shellfish harvest April-June and October-December each year. In 2019, due to water quality improvement, the spring harvest season was re-opened in the Conditionally Approved portion of the growing area. While harvest in the Conditionally Approved area is now allowed January through September, the area remains closed to harvest from October-December each year due to fall season elevated concentrations of fecal coliform bacteria in the marine water.

To reduce fecal bacteria pollution in the Nooksack watershed, BC and WA used multiple sampling methods to help identify potential pollution sources. Agencies acted on complaints, offering technical assistance and conducting regulatory compliance activities as appropriate. Both jurisdictions engaged agricultural and rural residential communities through non-regulatory outreach. A TCG outreach subcommittee facilitated compliance promotion and shared event schedules and education materials.

A TCG subcommittee developed a recommendation for a short- and long-term *E. coli* concentration border benchmark. Monitoring in comparison to the short- and long-term benchmarks will be reported next year.

Based on successful first year project completion, the TCG recommends minor adaptations to the work plan for the coming year. Adjustments will help align tasks with funding developments and policy direction to improve efficiencies and communication.

Overall 2018-2019 water quality monitoring results are positive. Compliance, stewardship, and communications activities successfully reached key audiences and helped to address fecal bacteria pollution concerns. The TCG will continue to implement work plan tasks in 2019-2020.

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Introduction

The BC/WA Nooksack River Transboundary Water Quality Task Group (WQTG) was established in December 2016 to develop a common understanding of current water quality issues, data, and conditions related to fecal coliform bacteria in transboundary waters and tributaries to the Nooksack River and Portage Bay. Bertrand Creek and the Fishtrap Creek are two large sub-basins of the lower Nooksack River watershed that straddle the international boundary. The land areas of both Bertrand Creek and Fishtrap Creek watersheds are located about half in British Columbia (BC), Canada and half in Washington (WA), USA.

As an outcome of the WQTG, the Nooksack River Transboundary Technical Collaboration Group (TCG) was established in August of 2018 to implement a three-year work plan to:

- Reduce fecal coliform bacteria contamination at transboundary stream locations of the Nooksack Watershed.
- Maintain communication at the operational level among member groups.
- Facilitate communication at the management level among member groups.
- Design and implement BC/WA joint actions described in the TCG's three-year transboundary work plan (Work Plan).
- Exchange updates related to jurisdiction-specific actions in the work plan.

This "Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report" (the report) includes water quality monitoring results for the Nooksack Watershed and Portage Bay, a TCG work plan implementation update, and recommendations for the following year including work plan adaptions.

Water Quality Monitoring

This section of the report addresses the relevant bacterial water quality sampling and analysis for BC and WA for the period of April 2018 to March 2019. This reporting period encompasses a full year of data including the four seasonal quarters. Partner data collected prior to the August 2018 TCG formation (April to July 2018) is included.

The locations covered are:

- Canada-United States border sites
- Nooksack River key tributaries originating in BC
- Nooksack River mainstem
- Portage Bay

Background

Various organizations conduct water quality monitoring throughout the Nooksack River watershed. Washington (WA) partners have maintained a long-term ambient monitoring program in the lower Nooksack River watershed since 1998. In October 2014, Washington (WA) partners began to include seven Canada-United States (CA-US) border sites into its existing ambient water quality monitoring program (Figure 1). WA included one additional border location (FT9) in 2016 and another border site in December 2018 (DEP0) to its ambient monitoring program. As of March 2019, WA collects ambient samples at nine border sites.

In December 2015, Langley Environmental Partners Society (LEPS) began collecting once-monthly samples at twelve sites in the Canadian portions of the Fishtrap Creek watershed, including the Pepin Brook sub-basin. LEPS collected samples on dates coordinated with WA monthly ambient sampling. This LEPS sampling program concluded December 2018.

In June 2017, BC Ministry of Environment and Climate Change Strategy (ENV) began collecting water samples at fourteen sites on Cave Creek, Bertrand Creek, Fishtrap Creek and Pepin Brook. In January 2019, BC ENV added monitoring at several hotspot sites in the watershed that had been previously sampled by LEPS through December 2018. See Figure 1 for the WA, LEPS, and ENV monitoring stations locations.

BC and WA compared their water quality sampling methodologies and determined that the methods are generally consistent and can be used effectively to look at results in a coordinated manner. WA partners collect grab samples for fecal coliform analysis following standard methods and outlined in each individual agency's Quality Assurance Project Plans (or QAPPs; Ecology 2014, WSDA 2017, Whatcom 2017). BC collects discrete (or grab) water samples for fecal coliform and *Escherichia coli* (*E. coli*) in accordance with the *British Columbia Field Sampling Manual* (BC ENV 2013a) and the BC Ministry of Environment, Lands and Parks *Freshwater Biological Sampling Manual* (BC ENV 2013b).

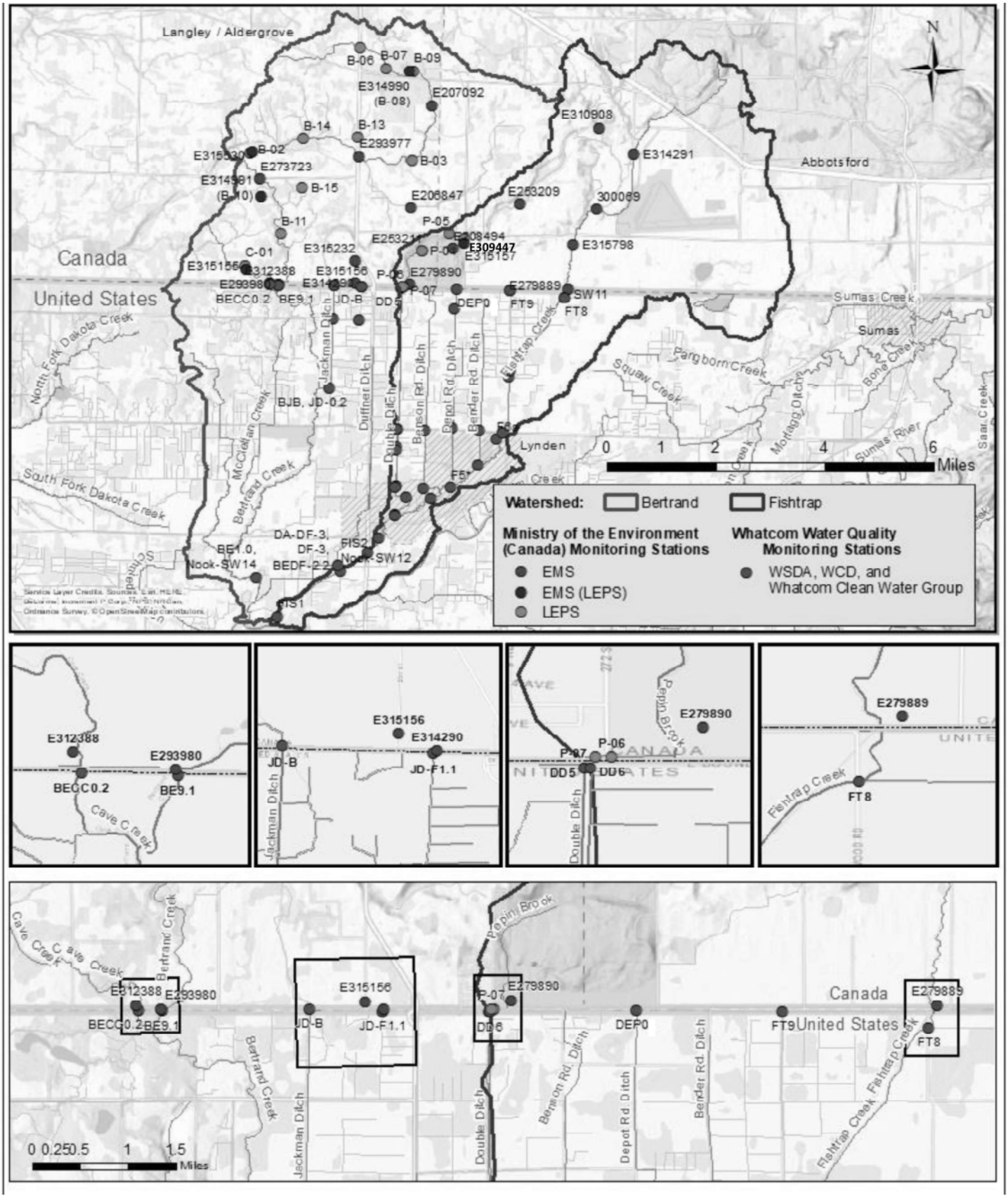


Figure 1: Map of Stream Water Quality Monitoring Ambient Locations in the Bertrand and Fishtrap Watersheds

Data from these sites can be found on WA's Surface Water Monitoring for Fecal Coliform Bacteria map or BC's Surface Water Monitoring Sites Interactive Map.

Ambient Water Quality Monitoring April 2018 to March 2019

Ambient sampling is routine sampling, pre-scheduled to occur typically weekly or monthly and is not dependent on weather conditions.

BC has fourteen ambient sampling locations including four border sampling locations on Cave Creek, Bertrand Creek, Pepin Brook and Fishtrap Creek. BC ENV samples ambient locations on a monthly basis and complements the monthly data with seasonal 5 consecutive weekly samples collected in 30 days (5 in 30) as required for comparison to BC water quality guidelines. BC also conducts source tracking sampling, which is discussed in the work plan implementation section.

BC's water quality data is available through the Surface Water Monitoring Sites web application. The web application provides the monitoring site name and description as well as direct links to the Environmental Monitoring Sites (EMS) web reporting where data can downloaded. BC's data can be accessed from this website: https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/tools-databases/surface-water-monitoring-sites

WA monitoring partners collect ambient samples at multiple locations within the Nooksack River watershed, including sites at the CA-US border (Figure 1). WA partners complement ambient sampling with storm event and source identification (source ID) sampling throughout the lower Nooksack River watershed, including Fishtrap and Bertrand creek sub-basins (discussed under storm event and source ID sampling section). WA ambient sampling relevant to transboundary collaboration includes:

- **Lower Nooksack watershed**: WA regularly samples 19 fixed location sites in the lower Nooksack River watershed twice monthly (http://www.co.whatcom.wa.us/2608/Routine-Monitoring-Results), including once on the day prior to monthly sampling for fecal coliform in the downstream marine water shellfish growing area of Portage Bay. (https://fortress.wa.gov/doh/oswpviewer/index.html)
- **Border sites:** From 2014 to 2016, WA sampled seven border locations monthly. In 2016 WA added border site FT9 and added DEP0 in 2018 as part of a larger, same-day ambient sampling run coordinated each month at fixed location sites throughout the lower Nooksack watershed

For this first reporting year, BC and WA did not combine data analysis due to data and sampling location challenges. While BC analyzes samples for *E. coli*, WA does not. Some border sampling sites monitored by BC and by WA differed in location, and may not be directly comparable.

BC *E. coli* 5 in 30 Sampling

BC *E. coli* data (Figure 2) show that the wet season geometric means meet the BC Primary Recreation guideline (200 CFU/100 mL) throughout the BC portion of the watersheds. This sampling was completed at locations that had historically higher *E. coli,* including one border site on Pepin Brook (E27890). BC added 5 in 30 day sampling at the four stream border sites and will report these results in the next annual report.

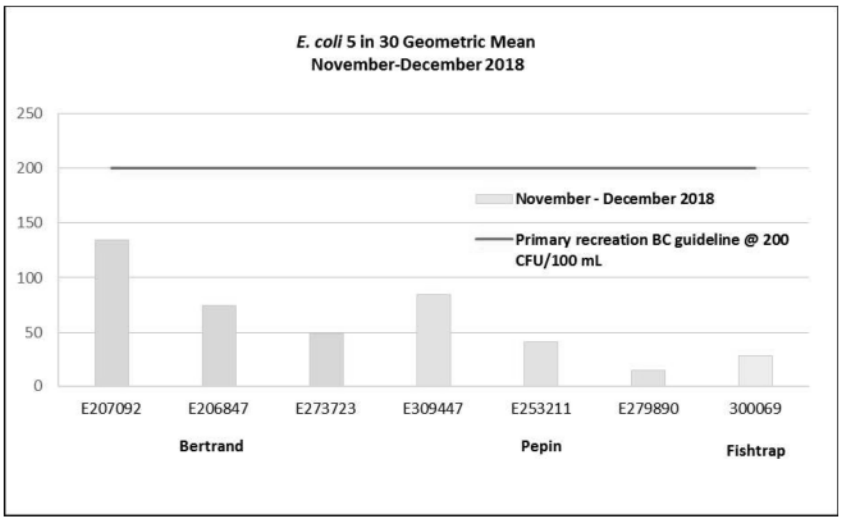


Figure 2. Wet season geometric means for *E. coli* at BC sampling locations for each tributary. The left to right order for each watershed reflects the order of the sites from upstream to downstream.

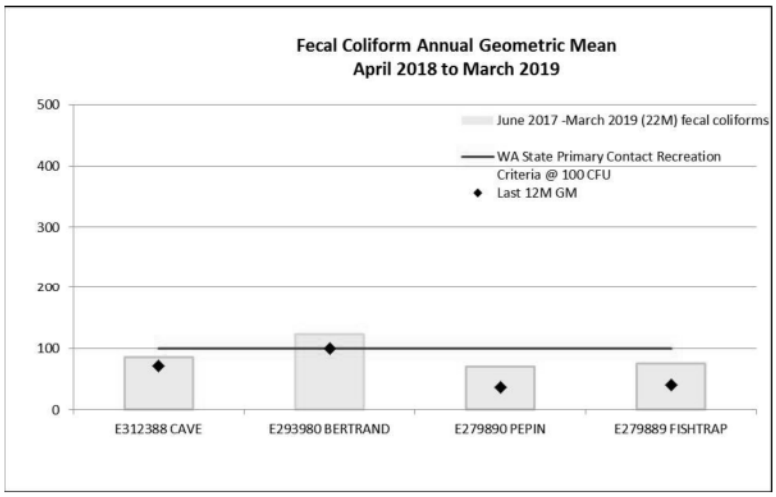
Border Sites Fecal Coliform by Year

BC and WA fecal coliform data from April 2018-March 2019 shows that annual geometric means for fecal coliforms (Figure 3a) are at or below the WA Primary Contact Recreation Criterion (100 CFU/100 mL) for Cave Creek, Bertrand Creek, Pepin Brook, and Fishtrap Creek. Annual geometric means show general improvement from the longer datasets (denoted as bars) at all sites except for site JD-F1.1:

- Site JD-F1.1 is located on a small tributary of Jackman Ditch and is the only site at which the geometric mean and estimated 90th has worsened in the past year compared to the past three years.
- Site JD-F1.1 is small in volume but continues to have bacteria counts far higher than those measured at other border sites.

Six of the nine border sites meet the WA criterion for fecal coliform estimated 90th percentile (200 CFU/ 100 mL) based on the last year of data (Figure 3b). This is an improvement compared to the three-year dataset, but means additional work is still needed to address seasonal and condition-specific high bacteria counts at these sites.

In general, higher concentrations are found upstream in these drainages. By the time the waterways reach the border sites, fecal bacteria concentrations are typically quite low. Overall, both BC and WA data show that the higher fecal coliform and *E. coli* concentrations typically take place during the wet season when soils are saturated or following significant rainfall events.



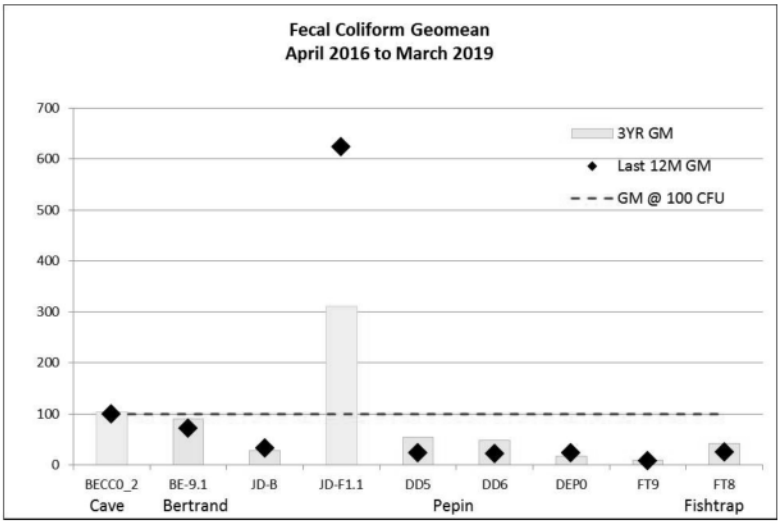


Figure 3a. Annual geometric means of fecal coliform at four border sites sampled by BC ENV (top) and nine border sites samples by WA partners (bottom) April 2018 through March 2019

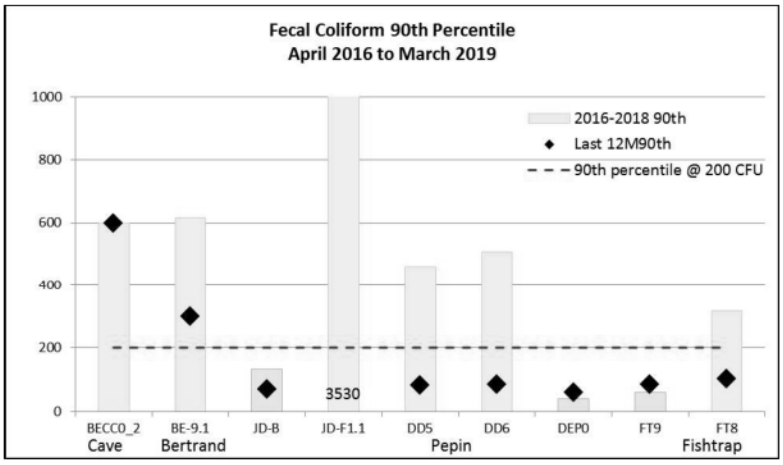


Figure 3b. Annual estimated 90th percentiles of fecal coliform at nine border sites sampled by WA partners April 2018 through March 2019

Border Site Seasonal Geometric Means

Seasonal geometric means for fecal coliform were calculated for BC and WA border sites on Cave Creek, Bertrand Creek, Pepin Brook, and Fishtrap Creek (Figure 4a). BC and WA datasets show similar patterns, but some differences.

The small dataset used for seasonal comparisons (3 to 12 samples taken at each site per season) make this analysis sensitive to specific sample dates and to individual high counts. Seasonal data is useful for comparing year to year, for identifying critical conditions and times of the year to focus bacteria reduction efforts, and for ensuring year-round sampling analysis does not mask periods of non-compliance. General conclusions for 2018-2019 seasonal fecal coliform data (Figure 4a) include:

- Cave Creek and Bertrand Creek each exceeded the WA Primary Contact Criterion for fecal coliforms in two or more seasons.
- Pepin Brook did not exceed the WA criterion for fecal coliforms in any season.
- Fishtrap Creek exceeded the WA criterion in the summer on the BC side of the border, but did not exceed for any seasons in WA.

For comparison purposes only, figure 4b displays seasonal *E. coli* geometric means in relation to the BC Primary Recreation guideline (200 CFU/100 mL), which is based on a geometric mean of 5 samples in 30 days. BC data show that Cave Creek *E. coli* was elevated in winter 2019; all other seasons at Cave Creek and all seasons at the other waterways were not elevated.

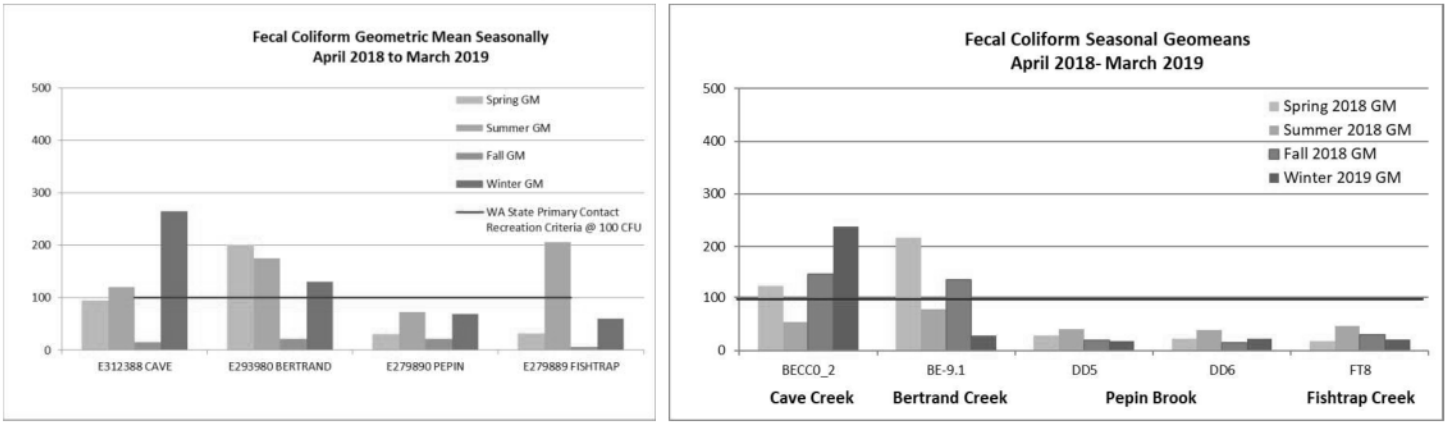


Figure 4a. Seasonal geometric means of fecal coliform at four border sites sampled by BC ENV (left) and at five border sites sampled by WA partners (right) April 2018 through March 2019

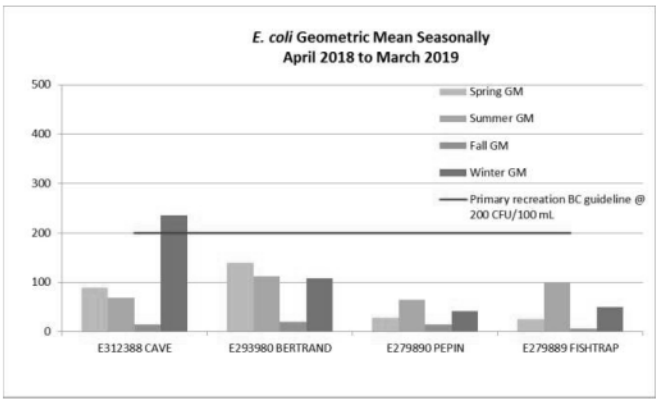


Figure 4b. Seasonal geometric means of *E. coli* at four border sites sampled by BC ENV April 2018 through March 2019

Nooksack River Tributaries and Mainstem

Fishtrap and Bertrand Creeks are the largest tributaries entering the Lower Nooksack River. The relative proportion of water that originates in BC in these two creeks varies seasonally and year to year. The *Lower Nooksack River Basin Bacteria Total Maximum Daily Load Evaluation* published in 2001 estimated that Fishtrap and Bertrand Creeks combined account for 44% of the annual fecal coliform bacteria load to the Lower Nooksack Basin. Hence, Fishtrap and Bertrand Creeks have been the focus of significant bacteria reduction efforts in the Nooksack watershed.

The furthest downstream monitoring stations in Fishtrap Creek (F1) and Bertrand Creek (B1) prior to entering the mainstem Nooksack River serve as "keystone" stations for the watersheds (Figure 5). Fecal coliform concentrations in these waterways have been declining since 2015. However, elevated counts in the Bertrand watershed over the past year (especially winter 2018-2019) have led to an increase in the annual geometric mean at B1.

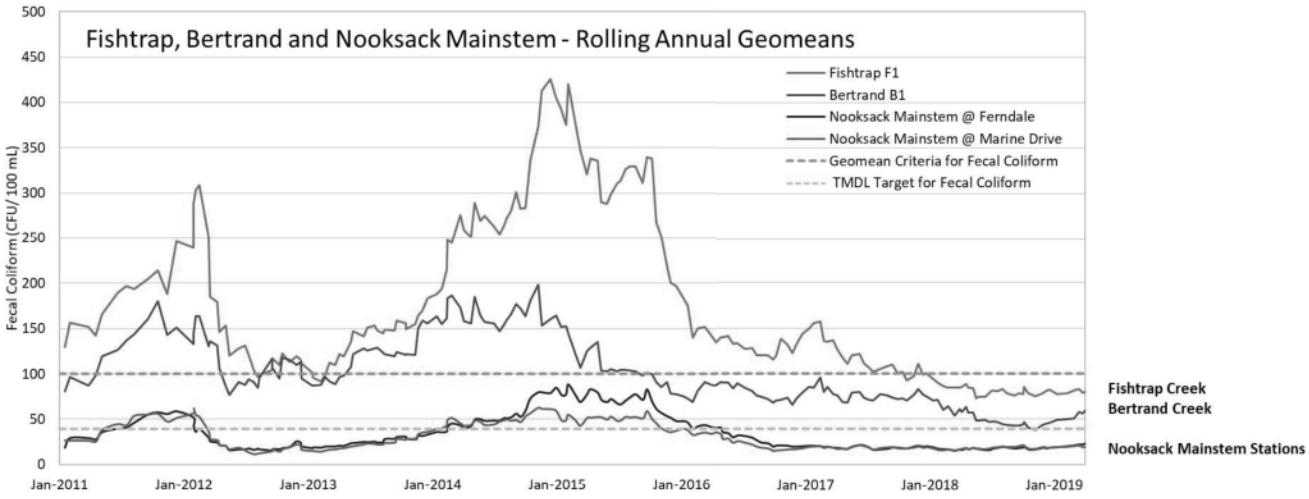
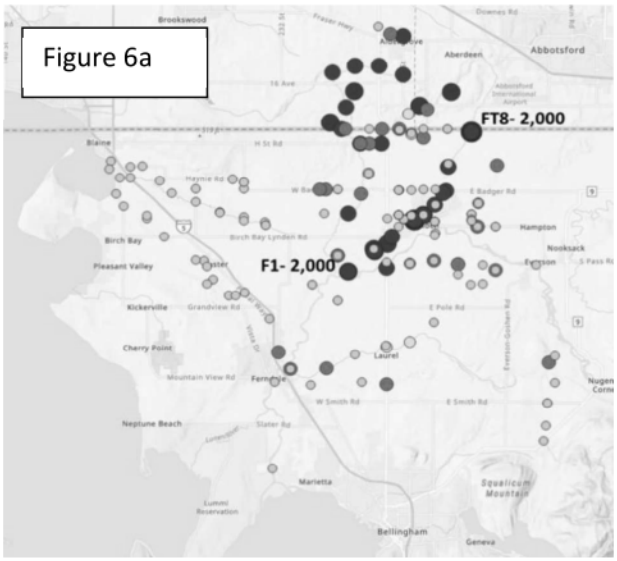


Figure 5. Rolling annual geometric means for the lowest downstream Fishtrap Creek (F1) and Bertrand Creek (B1) stations and two Lower Nooksack River mainstem stations. Sites are sampled twice monthly (n=24, with some minor exceptions).

Periodically during the wet season, coordinated ambient sampling in the Nooksack watershed captured instances where high fecal bacteria concentrations measured at CA-US border sites appear to travel through tributaries to the mainstem Nooksack River. The samples at the same locations would frequently be much lower the week before or after these occurrences. High concentrations were reported and responded to by BC ENV compliance staff as appropriate. Figures 6a and 6b offer two wet season examples of bacteria load transport through the system from the 2018-19 winter:

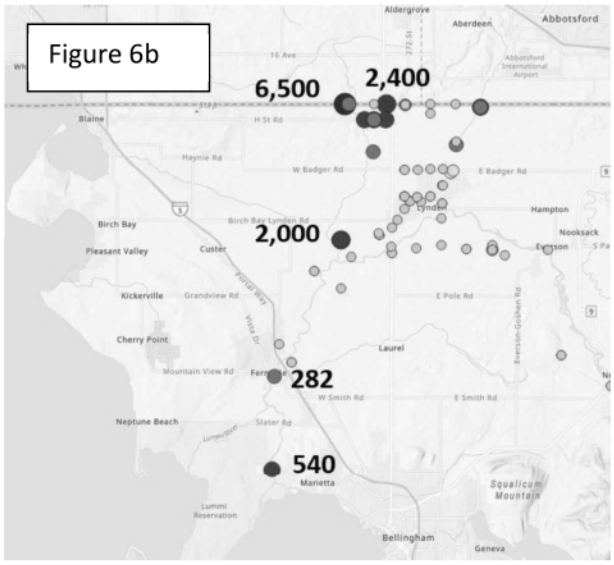
Screen shots from online data map showing preliminary results of fecal coliform bacteria analysis (colony forming units per 100 mL)

- *Red circles represent fecal bacteria concentrations above 500 fecal coliform per 100mL*
- *Green circles represent fecal bacteria concentrations below 100 fecal coliform per 100mL*



Screenshot from online data map - December 11, 2018

- *2,000 CFU/ 100 mL was measured at Fishtrap Creek at Northwood Road just south of the CA-US border (FT8).*
- *2,000 CFU/100 mL was measured at F1. F1 is a downstream Fishtrap Creek monitoring site located before Fishtrap Creek enters the Nooksack River*
- *From FT8 south, high fecal bacteria counts were measured downstream in the Fishtrap Creek mainstem.*
- *In this example, data from field and roadside waterways draining WA areas systems show fecal bacteria concentrations generally below 100 (i.e. green circles)*



Screenshot from online data map - January 7, 2019

- *6,500 CFU/ 100 mL was measured at Cave Creek at 0 Ave. (BECC0.2).*
- *2,400 CFU/ 100 mL was measured at Bertrand Creek at 0 Ave. (BE-9.1).*
- *2,000 CFU/ 100 mL was measured at B1. B1 is a downstream Bertrand Creek monitoring site located before Bertrand Creek enters the Nooksack River*
- *282 CFU/ 100 mL was measured at M2. M2 is located on the Nooksack River mainstem at Ferndale, WA.*
- *540 CFU/ 100 mL was measured at M1. M1 located on the Nooksack River at Marine Drive before the river enters the Lummi reservation boundaries and the marine system.*
- *Data from field and roadside waterways draining WA areas systems show fecal bacteria concentrations generally below 100 (i.e. green circles)*

Storm Event and Source Identification Sampling

WA uses storm event and source identification sampling to help characterize 'critical conditions' for the border sites. Critical conditions likely relate to seasonal and precipitation patterns as those components affect soil moisture levels, runoff conditions, stream flows, and bacteria loading. Critical conditions may differ among waterways due to size of the channel, soil types, land uses, potential bacteria pollution sources within the area drained by the waterway, and proximity to the source in time and distance.

In the past year, 55 source identification samples were taken at the 9 border sites. These samples are evaluated independently from the ambient dataset and are not used in the calculation of the geometric mean or estimated 90th percentile for any site.

BC adds discrete sampling at specific locations when additional information is needed to assist with confirming or identifying a potential source of elevated bacterial levels.

BC and WA carried out bacterial and microbial source tracking sampling projects during 2018-2019. Partners will report project results in the next annual report.

Portage Bay Shellfish Growing Area Monitoring

The Nooksack River is the largest source of freshwater to the Portage Bay shellfish growing area. Heavy or sustained rainfall (typically observed during the fall and winter) and substantial snowmelt (typically observed during the spring) increase the discharge of the Nooksack River to marine water. The interaction of the Nooksack River with Portage Bay is complex. The direction and extent of the river plume is influenced by river discharge volume as well as by wind and tidal conditions. High fecal coliform densities can be measured in Portage Bay when contaminated Nooksack River water enters the bay. Portions of the Portage Bay shellfish growing area are classified by the Washington State Department of Health as either Conditionally Approved or Approved as shown in Figure 7.

Washington State Department of Health (DOH) and Lummi Nation Natural Resources Department cooperate to collect once-monthly regulatory samples at Portage Bay sampling locations. DOH manages marine water sampling results accessible through an interactive Commercial Shellfish Map Viewer or summarized in shellfish growing area annual reports. DOH evaluates a 30-sample geometric mean and an estimated 90th percentile to determine compliance with marine water quality criteria for shellfish harvest (Figure 8).

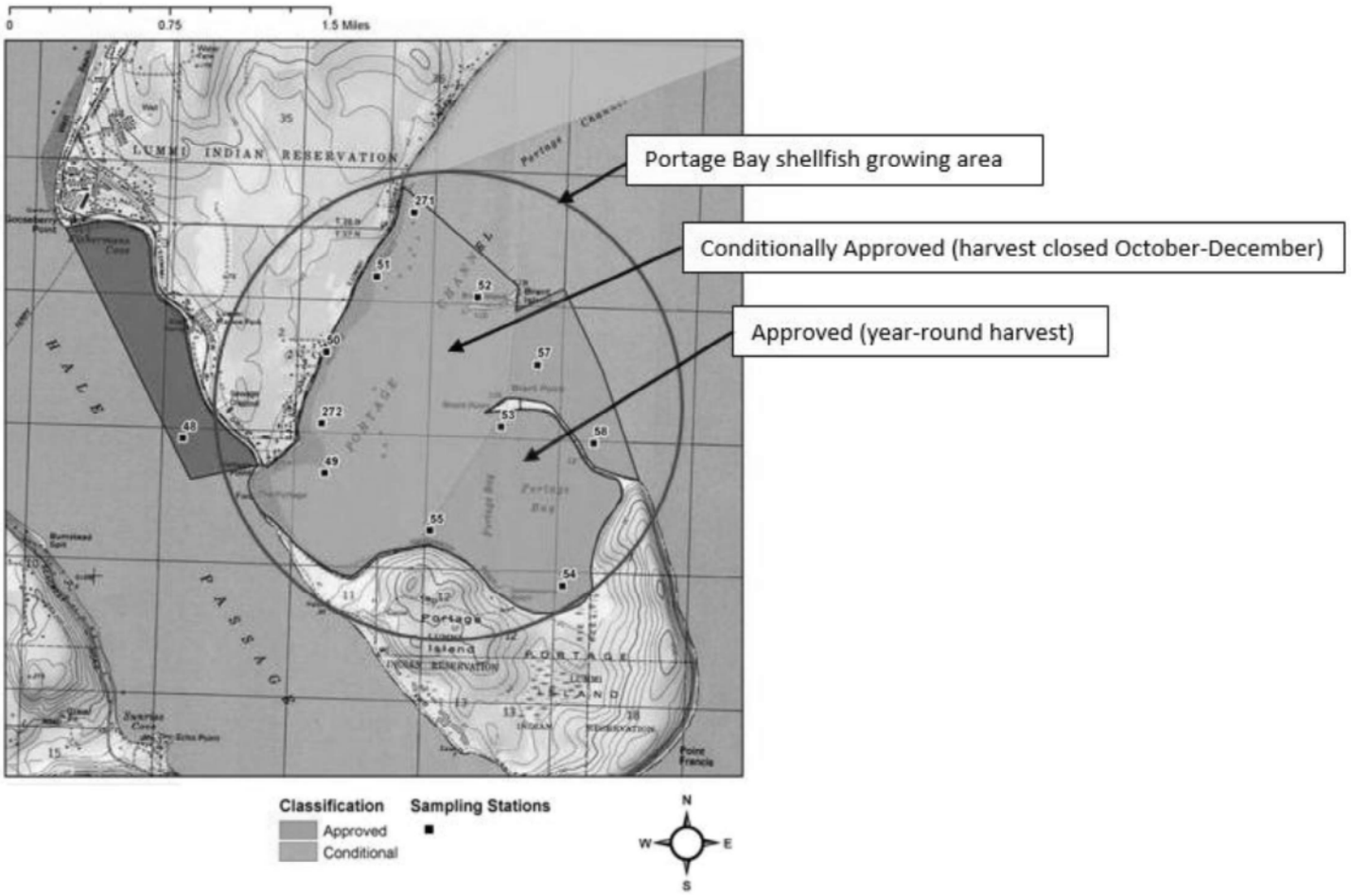


Figure 7: Map of Portage Bay shellfish growing area classifications as of March 2019

Spring Season Shellfish Harvest Recovery

In early 2019 after four years of closure, Washington State Department of Health (DOH) removed shellfish harvest restrictions for the April 1-June 30 spring season in the Conditionally Approved portion of the Portage Bay shellfish growing area (see Figure 7). A DOH January 2019 *Addendum to the 2009 Sanitary Survey Report of Portage Bay* (*2019 Addendum*) summarizes analysis of regulatory and special sample data confirming improved spring season water quality.

The *2019 Addendum* concludes:

- Based on improved marine water quality from April through June at stations in the Conditionally Approved area and multi-agency cleanup work in the Nooksack River watershed, all of the Conditionally Approved portion of the Portage Bay Growing Area is open to commercial shellfish harvest from April 1 through June 30 each year.
- The Conditionally Approved area remains closed to harvest from October 1 through December 31 each year due to continued poor water quality during these months.

Fall Season Water Quality Challenges

DOH's 2019 Addendum notes that all stations in the Conditionally Approved area meet National Shellfish Sanitation Program water quality standards when including the last 30 monthly samples. However, when data is sorted and analyzed seasonally, the geometric means fail to meet the standards when calculated with data collected during the three-month fall closed period.

The fall closed period geometric means were elevated when compared to the last 30 monthly samples and when compared to the open period only data. Because data from the fall closed period (October-December) shows elevated fecal coliform bacteria levels in the Conditionally Approved area during these months, the Conditionally Approved portion of the growing area remains closed to harvest during the October–December.

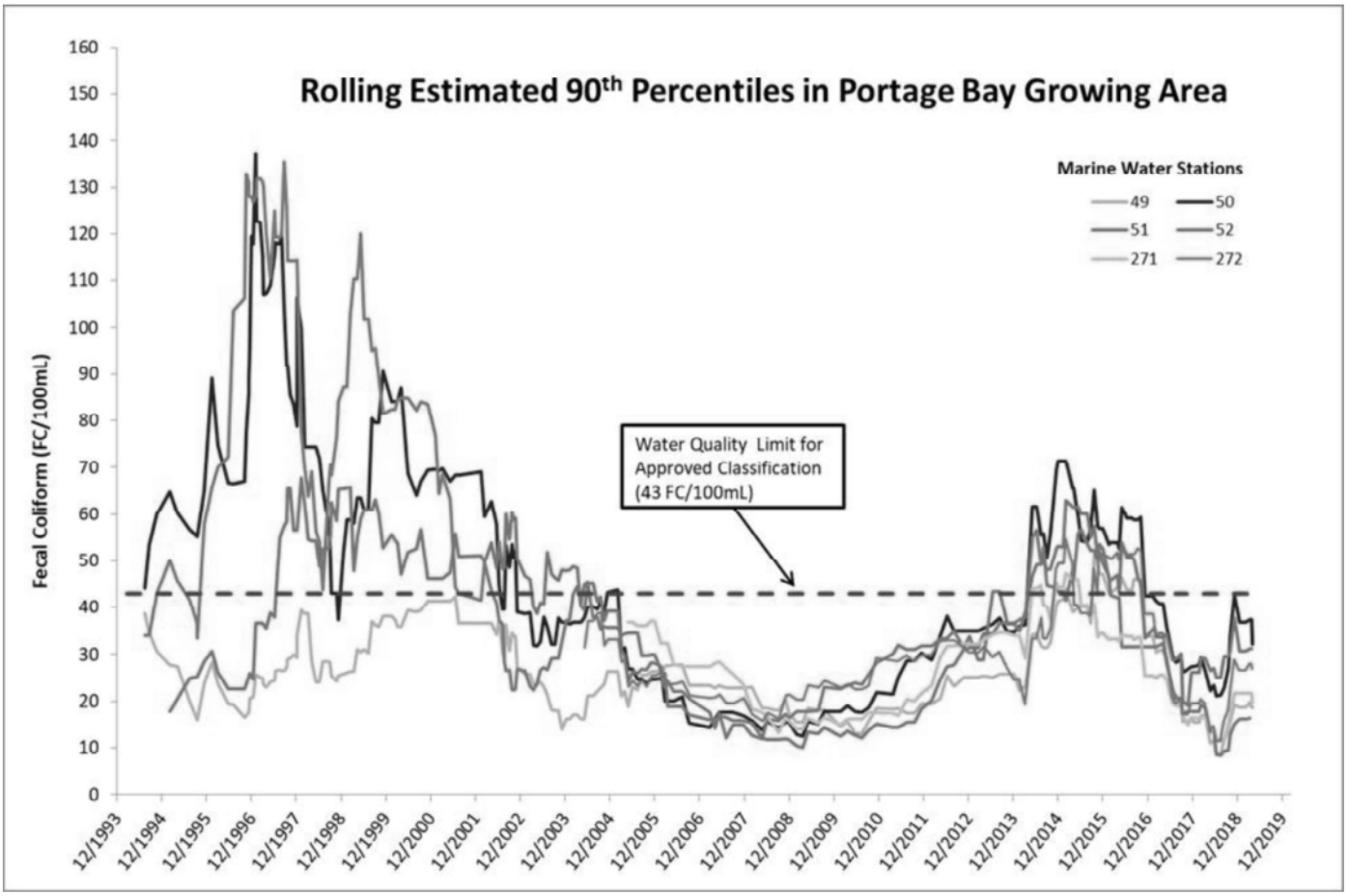


Figure 8. Estimated 90th percentiles for marine stations in the Conditionally Approved area of Portage Bay; 1993- March 2019.

Border Benchmark Recommendations and Initial Results

The TCG's Terms of Reference identifies deliverables for BC and WA to accomplish as joint actions. A key deliverable included setting a goal for fecal concentrations at water quality monitoring stations located at the CA-US border within the Nooksack watershed project area.

To meet the border goal deliverable, BC and WA TCG partners formed a subcommittee in October 2018 to begin reviewing data and developing alternatives. In June 2019 the subcommittee recommended the TCG consider adopting the following border benchmarks for 2-year and 5-year time periods using *E. coli* as the bacterial indicator:

- ***E. coli* of 200 CFU/100 mL** – Short-term border benchmark to be achieved at border stations over two-years
    - Benchmark is based on the geometric mean calculation of five weekly samples collected over 30 days (known as 5-in-30) and should apply to both wet and dry seasons
- ***E. coli* of 100 CFU/100 mL** – Longer-term border benchmark to be achieved at border stations within five years
    - Benchmark is based on the geometric mean calculation of 5-in-30 samples and should apply to both wet and dry seasons.
- The benchmark will be used at four border locations (i.e. the main waterways of Bertrand, Cave, Pepin and Fishtrap), with additional locations to be considered

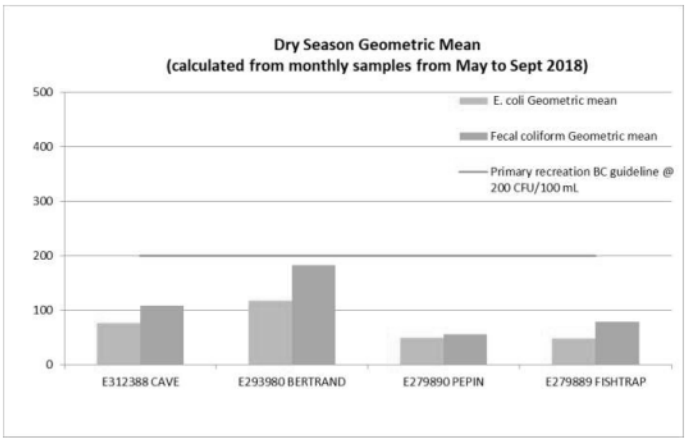
BC and WA border benchmark subcommittee members support the border benchmarks as proposed. Members emphasize that the short- and long-term benchmarks reflect the intention of continued pollution reduction.

As the TCG steering members consider the proposed benchmark, subcommittee members will continue to evaluate the similarities and differences between BC and WA monitoring frequencies and compliance assessments. Continued communication will help determine how subcommittee members will measure progress toward the short- and long-term benchmarks. Continuing conversations include:

- understanding how each side uses different datasets (e.g. ambient, storm event, source identification) in producing charts and communicating statistics
- refining border sampling locations and who will monitor them
- determining how BC and WA can adapt their monitoring programs to further complement each other, including cost-effectiveness and usefulness of data

Sampling for comparison to the border benchmark, based on the BC Water Quality Guidelines (i.e., geometric mean calculations based on five samples collected within 30 days, "5-in-30 sampling") was not conducted for the reporting period at all border sites. 5 in 30 day sampling at the four stream border sites has been added to BC's sampling program and will be reported out in the next annual report.

For comparison purposes only, Figure 9 displays dry and wet season geometric means for six monthly samples in relation to the BC Guideline for Primary Recreation for *E. coli*. BC's guideline is based on a geometric mean of 5 samples in 30 days. *E. coli* results have been generally low at the border for the reporting period.



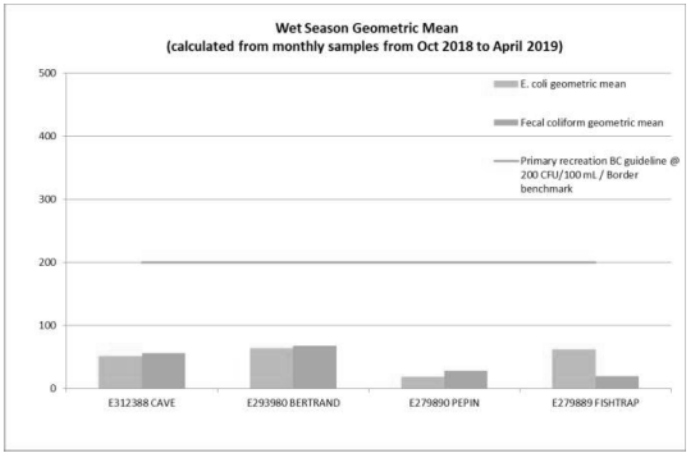


Figure 9. BC seasonal geometric means of fecal coliform and *E. coli* at four border sites sampled monthly by BC ENV from May through September 2018

Work Plan Implementation

The summary of activities is based on tasks in TCG Work Plan as recommended by the BC-WA Nooksack River Transboundary Water Quality Task Group. The TCG Work Plan identifies who was to be the lead (either WA or BC) or whether the task was to be a BC, WA joint initiative. This reporting covers the period of August 2018 to June 2019 as the TCG was established in August 2018.

BC
Joint = BC and WA
WA

Specific WA TCG Technical Member agency acronyms referred to in the activity summary include:

- Whatcom Clean Water Program (WCWP) - collective

State

- WA State Department of Agriculture (WSDA)
- WA State Department of Ecology (ECY)
- WA State Department of Health (DOH)

Local

- Whatcom Conservation District (WCD)
- Whatcom County Health Department (WCHD)
- Whatcom County Planning and Development Services (PDS)
- Whatcom County Public Works (WCPW)

Specific BC TCG Technical Member agency acronyms referred to in the activity summary include:

- Ministry of Environment and Climate Change Strategy (ENV)
- Ministry of Agriculture (AGRI)
- BC Agricultural Research and Development Corporation - Environmental Farm Plan (ARDCorp)

COMMUNICATION		
***TASK**: Periodic meetings or conference calls as necessary between BC management and Washington/local managers of the Pollution Identification and Correction program*		
Who	**Activities**	**Next Steps**
Joint	▪ Official TCG meetings: January and June 2019 ○ ENV and DOH co-chairs plan agendas, conduct meetings, track action items and follow up	▪ Continue twice yearly meetings
ENV	▪ Every 1 to 2 months BC team coordinate work plan meetings	▪ Continue meeting
WCWP	▪ Twice monthly field staff meetings; once monthly pollution identification and correction (PIC) program manager meeting	▪ Continue field staff meeting schedule

TASK: *Increase non-regulatory engagement with the agricultural/rural residential community by participating in relevant events and forums. Take advantage of transboundary opportunities for outreach and promotional engagement at events in the Nooksack Watershed and Whatcom County*		
Joint	▪ No joint BC/WA TCG participation in transboundary outreach event with ag/rural residential community ▪ Formed outreach subcommittee to facilitate non-regulatory compliance promotion information exchange; shared online access to event schedules and farm planning and septic system education promotional materials ▪ Joint participation in April 2019 North Puget Sound Pollution Identification and Correction (PIC) program meeting focused on source tracking tools; ENV staff participated by phone; meeting took place in WA	▪ Continue to strengthen communication about opportunities for agency partners to participate in events during 2019-2020 where agricultural and rural residential residents will be in attendance ▪ Continue resource information exchange
AGRI	▪ Contributes to and oversees Environmental Farm Plan (EFP) program and supports EFP workshops. Continue to support EFP events and forums	▪ Continue to support EFP events and forums
ENV	▪ Participated in outreach events and forums. ▪ Met with agricultural associations to explain the new agricultural waste rules ▪ Participated in EFP workshop	▪ Continue to participate in events and forums with target audiences
WCWP	▪ Hosted and participated in agricultural land use-related forums including workshops, farm tours, and speaker series ▪ Hosted and participated in community events including annual fun run; Small Farm Expo; SeaFeast to promote clean water goals and fecal pollution reduction activities ▪ Participated in routine meetings with farmer representatives (North Lynden Watershed Improvement District (WID) and Bertrand WID) to share data and collaborate on landowner contacts ▪ Conducted social marketing campaign to encourage septic system evaluations ▪ Conducted homeowner training classes to support code-required septic system operation & maintenance actions ▪ Distributed septic system rebates for qualified evaluations and maintenance; shared information about regional loan program to assist with septic system repair and replacement	▪ Continue to promote clean water goals and availability of farm planning services ▪ Continue to promote septic system educational opportunities and encourage proper operation & maintenance actions
TASK: *Expand Regional Operations Branch (ROB) Nooksack team. Invite non-ENV agencies to planning and work meetings*		
ENV	▪ Extended invitations to various local, federal and First Nation governments, provincial agencies and stakeholders, providing updates after every TCG meeting and when reports are posted	▪ Continue to share implementation progress

***TASK**: Continue managing and improving a shared database for multi-agency water quality data, including online results mapping*		
WCWP	▪ Improved and maintained multi-agency database and online data mapping capabilities through refining data submittal processes, ArcGIS layers, and collector apps ▪ Refined communication with laboratories to provide prompt online access to preliminary data for agencies to post to online map	▪ Continue supporting Data Coordinator position ▪ Continue multi-agency data team meetings to identify challenges and implement solutions
COMPLIANCE AND STEWARDSHIP		
***TASK**: Continue source identification and correction work (compliance inspections and compliance actions)*		
Who	**Activities**	**Next Steps**
Joint	▪ WCWP, led by WSDA, communicated to ENV high fecal bacteria results and/or visual observations of potential water quality concerns at border location sampling sites; ENV communicated plans and follow up results and inspected sites to determine sources of contamination. ▪ Communication resulted in source identification and/or plans for future monitoring	▪ Continue communicating amongst WA and ENV TCG members to share water quality observations and follow up actions, evaluate and adjust sampling program, identify and address hotspots, track progress, and refer water quality concerns to additional agencies as needed
ENV	▪ ENV completed follow up with previously inspected sites to determine compliance and escalated compliance responses when appropriate. ▪ ENV conducted new inspections at sites around fecal hotspot areas based on monitoring results to determine compliance and identify possible fecal bacteria sources. ▪ ENV conducted inspections to respond to complaints	▪ Continue to inspect in fecal hotspot areas and follow up on past non-compliance inspections
***TASK**: Set goal for reduced fecal coliform bacteria concentrations at border stations*		
Joint	▪ Established short-term and longer-term border benchmarks to reflect the targeted fecal bacteria concentration reductions at border monitoring locations ○ Formed short-term data review workgroup as part of longer-term data subcommittee ○ Compiled and analyzed relevant datasets ○ Proposed *E. coli* as the fecal bacteria indicator ○ Short-term, two-year benchmark established: *E. coli* 200 CFU/100mL geometric mean; applicable both wet and dry seasons	▪ Evaluate water quality data and track annual and seasonal progress relative to the border benchmark

	○ Long term, 5-year benchmark established: *E. coli* 100 CFU/100mL geometric mean; applicable both wet and dry seasons	
***TASK**: Promotional compliance project(s)*		
ENV	▪ Contacted 69 agricultural associations about this watershed project and results of a compliance audit ▪ Ten associations agreed to publish compliance promotional articles in their respective provincial agricultural newsletters/websites/magazines ▪ Developed 11 compliance promotional factsheets for January 2019 agricultural event and presented on the new agricultural rules that took effect in February 2019 at event workshops	▪ Developing promotional materials and guidance for distribution
AGRI	▪ Developing On-Farm Composting Handbook to help small to medium operations and will post the handbook on the web this summer	▪ Post and promote On-Farm Composting Handbook
***TASK**: Environmental Farm Plan outreach and cost-sharing initiative in the Nooksack tributaries*		
AGRI ARDCorp	▪ Updated agencies and stakeholders in January 2019 on the Environmental Farm Plan (EFP) program in watershed ▪ Delivered EFP training and workshops in watershed	▪ Continue to deliver EFP outreach and cost-sharing initiative
***TASK**: Target implementation of AGRI's Manure Spreading Advisory/Application Risk Management tool in Nooksack tributaries; develop nutrient management planning calculator and communicate to users*		
AGRI	▪ Distributed manure spreading advisories in 2018 and now replacing advisories with the Application Risk Management tool (ARM), an adaptation of WA's tool ARM is developed specifically for an area of the province that includes the Nooksack watershed ▪ Developed, launched and posted nutrient management planning calculator on ENV and AGRI websites. Presenting calculator to agricultural associations	▪ Continue to promote nutrient management calculator and launch ARM
***TASK**: Riparian Health Framework project to explore monitoring protocols for riparian health*		
AGRI	▪ Adapted a tool to evaluate riparian health using an inventory process and launched first training session in October 2018 ▪ Preparing to deliver second training session to further adapt tool to BC	▪ Deliver second training session and pilot tool in the Bertrand Creek
***TASK**: Use a Living Lands/Discovery Farm approach to engage stakeholders*		
AGRI	▪ Agriculture and Agri-Food Canada is setting up a "Living Laboratories" initiative across Canada, and there was potential for applied research to be set up to address water quality issues in the Nooksack, but B.C. is not scheduled to have a Living Laboratory site until 2021	▪ See the recommendation to remove this item from the work plan

***TASK**: Continue farm planning and cost-share funding initiatives*		
WCWP	▪ WCWP partners referred agricultural properties with water quality concerns to WCD for technical assistance ▪ WCD promoted farm planning services and offered incentives through soil tests, tarps to cover manure piles, rebates for qualifying practices, and cost-share program ▪ Whatcom County Public Works coordinated landowner contacts and facilitated small farm rebate and cost-share program ▪ WCD worked with farmers to produce farm plans and put in place water quality protection practices; technical assistance included working with dairy producers and crop producers related to manure and facility management	▪ Continue supporting and pursuing funding to continue and expand farm planning services and ways to engage the agriculture community in clean water solutions
***TASK**: Continue educating and reaching out to landowners about clean water goals; offer technical assistance and financial incentives to reduce pollution risk and encourage cooperative compliance*		
WCWP	• Field staff and outreach workgroup developed focused messages for spring 2019 season; partner agencies promoted collective messages related to timing of allowing animals on pasture, use of the Manure Spreading Advisory tool, and proper cleaning up of pet waste • Outreach venues and methods included printed materials, events, social media posts, pet waste kits, signage, radio ads, phone text alerts, and links to online resources such as water quality results map and story map [blue text are hyperlinks]	▪ Develop fall 2019 focused messages for partners to deliver based on each agency's program role and responsibility ▪ Continue multi-prong approaches to delivering coordinated messages
***TASK**: Collaborate to maintain and improve online water quality results and data communication*		
WCWP	▪ Continued multi-agency work to contribute monitoring data to online map ▪ Consistently made preliminary results available to the public via the online results map ▪ Provided relevant and timely content to the public via WSDA StoryMap ▪ Consistently created and posted monthly water quality summaries to the WCPW website	▪ Include DOH marine sampling results into online data mapping of preliminary results ▪ Include alerts for WSDA StoryMap in WCPW, WCD, and PDS newsletters
***TASK**: Maintain regulatory backstop programs, including relevant outreach/technical and financial assistance components; ~~collaborate to maintain and improve online water quality results and data communication~~*		
WCWP	▪ Recommendation to revise this task description to remove the crossed out phrase because it repeats wording from the task above Dairy ▪ Washington State Department of Agriculture (WSDA) Dairy Nutrient Management Program	▪ Continue routine inspections of dairy

	staff conducted routine compliance inspections at dairy facilities; reviewed records for compliance and offered technical assistance and/or referrals to WCD to improve or correct identified problems ▪ WSDA staff conducted investigations; pursued compliance actions related to water quality or record keeping violations ▪ WSDA staff responded to dairy-related water quality complaints; verified if valid; followed up with dairy producer <u>Non-dairy agriculture</u> ▪ Washington State Department of Ecology (ECY) Water Quality Program staff responded to complaints or field staff observations related to real or potential fecal bacteria pollution resulting in water quality violation; if verified valid water quality concern, followed up with property resident/landowner offering technical assistance and referral to WCD and using agency enforcement protocols ▪ Whatcom County Planning and Development Services (PDS) responded to complaints or field staff observations related to real or potential critical areas ordinance violations; if verified critical areas ordinance violation, followed up with property resident/landowner offering technical assistance and referral to WCD using agency enforcement protocols ▪ PDS carried out annual review of farm plan implementation to evaluate landowner compliance with Critical Areas Ordinance	facilities and dairy record-keeping documents and follow up on complaints and/or high bacteria counts related to dairy operations ▪ Continue regulatory backstop programs for non-dairy agriculture land use sources of fecal bacteria pollution ▪ Continue regulatory agency work with non-regulatory agencies offering technical assistance and rebate and cost-share opportunities to encourage implementation and maintenance of water quality protection practices
***TASK**: Continue assessing effectiveness of management practices*		
WCWP	▪ Recommendation to revise this task description to recognize that WCWP does not formally assess effectiveness of management practices as part of its current bacteria Pollution Identification and Correction (PIC) program ▪ Recommendation to revise this task description to better reflect intent for WA partners to identify and pursue effectiveness monitoring in a way that provides useful information in PIC program prioritized geographic areas	▪ Perform a "needs" assessment for effectiveness monitoring ▪ Based on assessment results, incorporate effectiveness monitoring into future implementation projects as resources allow
***TASK**: Continued administration of OSS compliance efforts; operations & maintenance program (regular system evaluations) including repair/replacement of failing systems; oversight of OSS design and installation; financial incentives*		
WCWP	▪ Whatcom County Health Department (WCHD) responded to complaints, water quality data,	▪ Continue OSS compliance efforts, including

	and field observations related to possible human waste sources of fecal bacteria pollution ▪ If human waste source identified, WCHD followed up using agency enforcement protocols ▪ WCHD administered Whatcom County's On-Site Sewage system (OSS) operation & maintenance (O&M) program including permitting, conducting homeowner OSS education classes, evaluating reports of system status, notifying landowners of OSS evaluation requirements, ensuring failing systems are repaired or replaced, and sharing information about rebates and regional loan program ▪ Whatcom County Public Works worked with WCHD to share information about rebates for OSS O&M actions and to distribute rebates	landowner contacts and follow-ups.
MONITORING		
***TASK**: Continue source identification sampling to identify fecal coliform sources*		
Who	**Activities**	**Next Steps**
Joint	▪ WA collected 55 total storm event samples at 9 border sites during the annual data reporting period (April 2018-March 2019) ▪ BC conducted additional targeted sampling based on unusual site conditions and/or information received about particular sites in the watershed ▪ BST/MST projects by BC and WA in these watersheds collected just over 100 source ID samples for environmental DNA analysis ▪ BC/WA communicate following high results at the border which can result in additional sampling	▪ Continue to consider source ID sampling data with field condition information to better characterize critical conditions and potential pollution sources ▪ BC will continue to coordinate and communicate internally with Compliance and Authorization departments ▪ WA to continue storm event sampling
***TASK**: Continue long- and short-term ambient sampling in freshwater and in shellfish growing areas*		
Joint	▪ BC and WA performed monthly ambient sampling throughout the annual data reporting period (April 2018-March 2019) ▪ Coordinated WA freshwater sampling in the Nooksack River watershed with monthly DOH and Lummi Natural Resources marine sampling in Portage Bay ▪ BC sampled monthly at 14 stations on Bertrand and Fishtrap Creeks and Pepin Brook, including 4 sites on the CA-US border ▪ BC and WA coordinated on same-day sampling on 15 events during the annual data reporting period ▪ BC completed two attainment sampling events (5-in-30) for establishing and tracking progress towards a border benchmark and evaluating	▪ Continue coordination of sampling dates for monthly ambient sampling (dates currently scheduled through December 2019) ▪ Data subcommittee will continue to evaluate trends in ambient data (twice annually) ▪ BC will continue its twice annual border benchmark attainment sampling on streams (5-in-30)

	seasonal trends in data, one sampling event is within the annual data reporting period ▪ BC and WA formed data subcommittee to coordinate monitoring, data sharing and collective analysis. ▪ BC and WA shared sampling plans and standard operating procedures ▪ Formed and maintained data subcommittee to coordinate monitoring, data sharing and collective analysis	
***TASK**: Microbial/bacterial source tracking project (BST/MST)*		
ENV	▪ BC collected 70 BST water samples and analyzed 36 for 16S and 13 for Shotgun, and collected 7 scat samples of different species ▪ BC has initiated communicating preliminary results to key partners through a presentation	▪ Evaluation of results for gap analysis and potential additional sampling ▪ Communicate final results to key partners for education and compliance promotion and audits
***TASK**: Research and evaluate usefulness of source tracking methodologies (e.g. microbial source tracking, metagenomics, ZAPS)*		
WCWP	▪ WCD/Exact Scientific Services conducted a microbial source tracking (MST) project scheduled for completion at end of July 2019. WCD is producing a project report. Water quality samples analyzed for the project included samples from three CA-US border water quality monitoring locations. ▪ WCD, DOH, Lummi Natural Resources, and the US Environmental Protection Agency maintained a research project begun in 2017 evaluating use of ZAPS LiquID water quality monitoring equipment in the Nooksack watershed. WCD will produce a project report by end of 2019. ▪ Tested usefulness of a fluorometer for measuring optical brighteners during a three month period	▪ Continue exploring source ID tools and making use of tools determined to be helpful and cost effective ▪ Communicate final results to key partners and the public.

Conclusions

TCG members completed first year tasks outlined in the TCG work plan and met deliverables stated in the Terms of Reference. Highlights include:

- Establishing a three-year goal for fecal concentrations at project area CA-WA border locations.
- Forming data management, border benchmark, and non-regulatory outreach subcommittees.
- Meeting formally in January and July 2019.
- Coordinating water quality monitoring plans and evaluation of monitoring results.
- Acting on water quality complaints, including offering technical assistance and conducting regulatory compliance activities as appropriate.
- Hosting and/or participating in relevant non-regulatory engagement events and forums and distributing promotional materials through various media.
- Completing an evaluation of first year project work and an annual summary report
- Developing recommendations for adaptations to incorporate into following year work to improve effectiveness and efficiency

Overall 2018-2019 surface water quality monitoring results are positive. However, due to natural annual variability and limited data, it is too early to make conclusions about long term trends of *E. coli* at the border. The TCG will continue to implement work plan tasks in 2019-2020.

Recommendations

The TCG recommends the following adaptations to the work plan based on the first year of implementation:

Communication:

1. Identify an approved shared platform for BC and WA collaboration to produce joint documents such as annual reports.
2. Compile a list of online resources and related projects, including websites or document links and any open data to showcase the project's resource development and collaboration (e.g. flow or nutrient data; local and related research efforts; other transboundary collaboration efforts).

Compliance:

1. Change the Work Plan category title from "Compliance" to "Compliance and Stewardship" to acknowledge non-regulatory outreach, technical assistance, compliance promotion components.
2. BC task: Remove "Use a Living Lands/Discovery Farm approach to engage stakeholders," as BC is scheduled to access this federal initiative in 2021 and this project ends in 2021.
3. WA task: Remove this duplicative task captured in another item "collaborate to maintain and improve online water quality results and data communication" from longer task description of "Maintain regulatory backstop programs, including relevant outreach/technical and financial assistance components; ~~collaborate to maintain and improve online water quality results and data communication~~."
4. WA task: Change task description from "Continue assessing effectiveness of management practices" to "Evaluate needs for measuring effectiveness of management practices; incorporate identified effectiveness monitoring priorities into future practice implementation projects." This

task was originally misstated; WA's effectiveness monitoring is currently very limited but local partners are working to better integrate this type of monitoring into WA programs.

Monitoring:

1. Coordinate and prioritize sampling events by both jurisdictions to occur on the same day north and south of the border at least once-monthly.
2. Split a limited number of water samples for analysis at both BC and WA laboratories to determine inter-laboratory variability.
3. Conduct multi-agency same site duplicate or replicate samples to ensure comparable data.
4. Evaluate border sampling coordination between jurisdictions, including:
    a. Prioritizing sampling sites
    b. Statistically comparing datasets from geographically close BC and WA sites to determine if the site data can be used interchangeably
    c. Determining if any geographically close sites can be removed
    d. Identifying additional sites that should be monitored
    e. Include the required 5 in 30 day sampling at key seasons.
5. Gather additional hydrological information to better understand loading from Canadian portions of Bertrand and Fishtrap watersheds to downstream WA portions of Bertrand and Fishtrap Creeks and to the Mainstem Nooksack River.

Overarching addition:

The TCG annually reviews and updates the project's Terms of Reference, Work Plan and monitoring programs based on current circumstances.

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Current Operations in British Columbia

s.17

Inactive Projects with Long-Term Liability Issues[1]
s.17; s.21

[1] See pages 9-12 for more info on these projects

Trail Operations Facility (Lead-Zinc Smelter)

Teck Metals Ltd. operates a lead-zinc smelter in the community of Trail, BC (Trail Operations). The company holds three air discharge permits and an effluent discharge permit, which authorize waste discharges from the zinc smelter including about 9,300 tonnes of SO2 annually to the Trail airshed.

The air discharge permit for the zinc smelter is being amended to authorize emissions from a newly constructed No. 2 Acid Plant, which will replace a 1970's acid plant with best commercially available technology. The new plant is expected to reduce SO2 emissions by approximately 200 tonnes annually.

SO2 emissions from Trail Operations are regulated by specifying maximum limits not to be exceeded at four community ambient air quality monitoring stations located around Trail, as opposed to specifying stack limits. Currently the permitted ambient limits for SO2 are based on the 1979 Pollution Control Objectives for The Mining, Smelting, and Related Industries. These limits will be updated when the zinc smelter permit is amended.

The smelter in Trail that has been in operation for over 100 years and waste discharges from it have resulted in metal contamination on properties within the city as well as in the Lower Columbia River Valley from Castlegar to the US Border (the "Environmental Management Area").

- Over 8,000 private properties and extensive Crown lands have been contaminated from historic smelter emissions
- Estimated 1,200 properties in Trail classified as high risk under ENV protocols due to lead concentrations exceeding 10 times the Contaminated Sites Regulation (CSR) residential soil standard for lead
- Approximately 12 million tonnes of slag discharged into the Lower Columbia River between 1929 and 1995
    - The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy
    - Slag material in pools is mobile and continues to be transported downstream
    - Of the 12 million tonnes of discharged slag, 10% is estimated to remain in Canada
    - It's estimated that 60% of the remaining slag in Canada is located in the Waneta Eddy

In February of 2019 Teck applied for an amendment to their effluent discharge permit for the Trail smelter, to include new works as a result of upgrades ordered by Environment and Climate Change Canada and Fisheries and Oceans Canada. This permit allows Teck Metals Ltd to discharge treated effluent containing metals and other contaminants to the Columbia River. As part of the amendment, the Ministry intends to undertake a comprehensive review of the Aquatic Receiving Environment Monitoring program to evaluate its effectiveness and adequacy. The amendment is anticipated to be completed by the end of 2019.

Remediation Activities in Teck, Trail Environmental Management Area

ENV has been working with Teck, Interior Health and the City of Trail since 1988 to reduce risks to human health from current and historical smelter operations. Smelter upgrades since the 1990s have resulted in a more than a five fold reduction in children's blood lead levels in Trail (from 22 to 4 ug/dL), although levels still remain above the Canadian average of 0.8 ug/dL.

Teck plans to seek the approval of ENV and Interior Health for a Wide Area Remediation Plan (WARP) under the Contaminated Sites Regulation (CSR) for remediating the Environmental Management Area. In December 2018, the Provincial Health Officer advised that an independent human health risk assessment will be conducted by the Ministry of Health (HLTH), with input from ENV and the City of Trail, to establish human health protective soil remediation targets for the WARP.

On December 7, 2018 ENV imposed requirements for Teck's preparation of a 2019 work plan for remediating highest risk properties in the City of Trail. The work plan will also formalize the regulatory process for Teck's ongoing remediation work while the Province completes their human health risk assessment needed to finalize the WARP. The 2019 workplan was submitted on January 31, 2019 and includes significant site investigation (> 300 properties) and remediation (>75 properties) activities with a focus on properties where children reside. Young children are at greatest risk from lead exposure.

The WARP will also address risks to the terrestrial environment in the Environmental Management Area. The Lower Columbia Ecosystem Management Program (LCEMP) provides a framework for assessing and remediating and/or restoring terrestrial habitats that have been adversely impacted by metal contamination from historic smelter emissions.

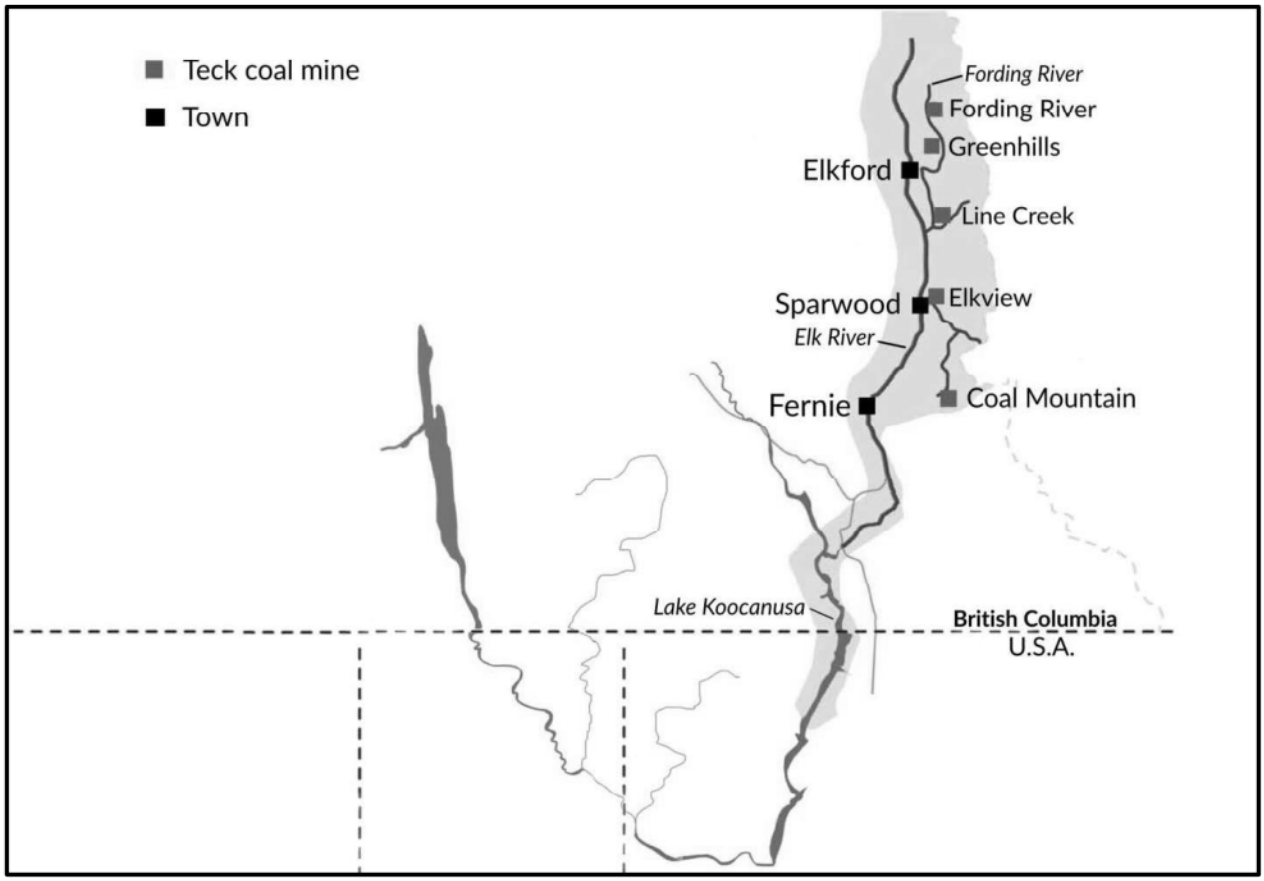
ENV is also involved in reviewing remediation activities associated with surface water and groundwater discharges to the Columbia River from the Teck, Trail Operations site. This includes:

- A Groundwater Pump and Treat system to prevent the discharge of a large ammonium sulphate and metal plume into the river and below the community of East Trail. The first phase of the Groundwater Treatment Plant (GWTP) was completed in 2016 (extracting 3,500 m3/day). A second phase is currently underway.
- Investigations and interim mitigation measures to reduce metals discharges into Stoney Creek and downstream to the Columbia River.
- Assessment of slag deposits in the Columbia River Area Adjacent to Downtown Trail, (also known as CRAAD) for aquatic ecological risks and to determine what remedial actions may be required.

Elk Valley Mines

Waste rocks from Teck's coal mines in the Elk Valley are leaching selenium, nitrogen and other contaminants into nearby waterways, eventually making their way to the Koocanusa Reservoir, also known as Lake Koocanusa, which straddles the Canada-US border. Selenium toxicity in fish results in many adverse effects including reductions in growth, behavioural changes, increased deformity, and increased mortality in early life stages.

Teck's Line Creek Water Treatment Plant came online in 2014 with the goal of reducing selenium discharges to safe levels. However, the plant was shut down six months after opening due to a fish kill and subsequent investigation which found it was not working as intended. After refurbishments, the plant came back online in the fall of 2018. Teck reports that the new plant reduces selenium concentrations by 96% and nitrate by 99% thanks to a new advanced oxidation process. Another treatment plant of the same design is under construction at the Fording River mine, to be completed by 2020 with full operation expected by December 31, 2021.



Map of Teck's Elk Valley Mining Operations

Tributary Management Plan

The operation of Teck's five coal mines in the southeast of BC has resulted in water quality impacts for rivers and tributaries. As part of Teck's Valley Permit for the mines, the Ministry imposed a condition requiring Teck to develop a Tributary Evaluation Program and a Tributary Management Plan to identify and permanently protect tributaries that have not been impacted by mining. However, differences in understanding by the company, the Ktunaxa National Council (KNC) and ENV regarding the interpretation of "permanent protection" as articulated in the permit has resulted in delays.

Teck's permit also required the company to establish the Environmental Monitoring Committee (EMC) to review and provide technical input on permit submissions, including the Tributary Management Plan.

The EMC's membership includes Teck, ENV, the KNC, the Interior Health Authority, Environment and Climate Change Canada, and an independent scientist.

The EMC has been engaged in evaluation, ranking and prioritization of tributaries since 2015 and is comfortable with the final Tributary Evaluation Program and the prioritization tool that has been developed. However, a final Tributary Management Plan that meets the expectations of ENV and the KNC remains outstanding (it was initially required December 31, 2016) and has become a source of conflict between Teck, ENV and the KNC's technical representatives due to differing interpretations of the term "permanent protection." Teck's interpretation allows for effluent discharges and changes in water quality, whereas ENV and the KNC interpret permanent protection to mean that un-impacted tributaries that provide relatively high habitat value would remain un-impacted by coal mining activities.

The EMC met on January 21 and 22, 2019 in Vancouver to discuss the Tributary Management Plan submission. ENV staff clarified their expectations for the Tributary Management Plan with respect to providing for permanent protection. Teck seemed to be receptive but explained that their company cannot, or is unwilling at this time, to commit to foregoing proven reserves in the area and wants to maintain the possibility of accessing those reserves in the future. Further discussion is needed.

s.16

The final Tributary Management Plan was submitted by Teck on February 28, 2019. ENV and KNC are collaborating to review and provide recommendations to Executive on the final plan. A decision package will be prepared for consideration by the Statutory Decision Maker.

Impacts in the United States

Metal contamination from Teck's operations in Trail and the Elk Valley extend beyond BC's territory into the United States. The Confederated Tribes of the Colville Reservation (CTCR), which represents twelve Bands in the U.S., has been pursuing Teck in court to hold the company liable for the impacts of its operations being felt in their territory. In its defense, Teck argued that U.S. courts do not have jurisdiction because the operations in question are located in BC. In September of 2018 the 9th Circuit Court of Appeals determined that Teck is liable for impacts in the U.S. and awarded the CTCR approximately $8.6 million to cover investigation costs and CTCR's legal fees. Teck had 90 days to appeal the decision to the U.S. Supreme Court; the Ministry has not yet confirmed whether the company pursued this option. s.21

s.21

In the late summer of 2018 the Canadian Consul in Seattle contacted the BC Ministry of Environment and Climate Change Strategy (ENV) with a request from CTCR to speak with ENV staff. Follow-up queries with the CTCR and the U.S. Environmental Protection Agency (US EPA) Region 10 staff clarified that the CTCR wanted to discuss management of historical slag piles from Teck's Trail smelter.

ENV staff and CTCR representatives confirmed that the CTCR has been involved for many years with contamination from the smelter and they expect to begin undertaking clean-up of historical slag in the US Portion of the Columbia River soon.

The CTCR has expressed interest in identifying opportunities to coordinate clean-up efforts with the Province, and in working with ENV to support studies in Canada on white sturgeon spawning grounds.

Recent research has shown that early life stages of white sturgeon are particularly vulnerable to copper exposure and monitoring by ENV has demonstrated that sediments sampled from the Waneta area exceeded sediment quality guidelines for numerous metals, including copper. Substantial research into the toxicity of slag-contaminated sediments to white sturgeon has been conflicting, however numerous studies have concluded that a fraction of the slag contaminants may be bioavailable. Steve McAdam (ENV Ecosystems Branch) concluded that the most likely cause of white sturgeon recruitment failure in the Lower Columbia River was the change in substrate associated with flow regulation and not chemical pollutants. Steve will be leading a small scale pilot, with support from Environment and Climate Change Canada, to undertake cleaning of substrate in a white sturgeon spawning site near Waneta. The pilot study, now planned for spring 2020, will investigate substrate infilling by first cleaning one or more small areas and then monitoring how long it takes for them to infill with fine substrates (sand sized grains that might include slag). Studies at other locations are evaluating whether substrate remediation can restore recruitment. If they show success then the pilot cleaning study at Waneta will contribute to a long-term plan of substrate remediation at this site. Understanding factors that affect the rate of infilling by fine substrates will be important to ensure the long term maintenance of suitable substrate conditions at this site. (Note that all these details address the physical state of the substrate, and not any potential contaminant effects.)

Participation in Working Groups:

Teck participates in a variety of working groups and forums related to the operation, monitoring and compliance of their mines in the Elk Valley.

The Lake Koocanusa Research and Monitoring Working Group (LKRMWG) is a cross-border forum through which site-specific criteria and water quality guidelines for the Koocanusa Reservoir are discussed and recommended, as well as a forum for discussing cumulative effects in the watershed. The LKRMWG is finalizing draft water quality guidelines/criteria for selenium in Lake Koocanusa, targeting completion by 2020. Additional objectives/criteria for other substances could be developed in the future. (*ESSPD/Water Protection and Sustainability Branch; EPD/Regional Operations Branch; ESSPD/Strategic Policy Branch*)

The Elk Valley Cumulative Effects Management Framework Working Group is a collaborative initiative funded in partnership by the Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (FLNR), the Environmental Assessment Office, the KNC and Teck Coal Ltd. The project is working to collect and analyse data on cumulative effects in the Elk Valley in order to provide the basis for informed decision-making in the area. A final report is completed and soon to be released. The

knowledge gained from the project will be used to inform a region-wide assessment that is now underway. (*EPD/Regional Operations Branch*)

FLNR recently announced the Collaborative Stewardship Framework, which will identify how the province and the KNC will work together at a government-to-government level on land management decisions in the Elk Valley. Although industry is not participating in this initiative, outcomes will affect industrial activity in the region through land management decisions. (*No ENV involvement*)

The BC/MT Koocanusa Reservoir Transboundary Monitoring Task Group is a collaborative project including ENV, the Montana Department of Environmental Quality (MT DEQ), Teck, the US Army Corps of Engineers and the US EPA. The project was initiated in response to feedback from MT DEQ and the US EPA on Teck's draft monitoring program for the Koocanusa Reservoir, wherein the US Agencies recommended additional monitoring be carried out for the US Portion of the Reservoir. The Task Group is developing a 2019-2020 monitoring and data collection work plan for the US portion of the Reservoir, targeting completion by spring 2019. (*ESSPD/Strategic Policy Branch; EPD/Regional Operations Branch; ESSPD/Water Protection and Sustainability Branch*)

The Columbia River Integrated Environmental Monitoring Program (CRIEMP) is a cross-border information sharing forum including FLNR, Teck, local governments, Indigenous organizations and others. Since 1991 the forum has enabled participants to collaborate on aquatic ecosystem monitoring, evaluation and reporting, to communicate information to stakeholders and the public, and to cost-share special studies. (*EPD/Regional Operations Branch; ESSPD/Water Protection and Sustainability Branch)*

The Trail Area Health & Environment Committee (THEC) is a partnership between the local community, Teck, Interior Health and ENV. THEC is formally established as a Sub-Committee of the City of Trail and is responsible for the Trail Area Health & Environment Program (THEP). The Committee has operated since 1990. For the first 11 years, it was known as the Trail Community Lead Task Force. The Task Force was formed as a community-industry-government partnership to reduce children's blood lead levels. Today, preventing exposure to smelter metals in the community is the main focus of THEC. (*EPD/Regional Operations Branch/South Authorizations Team; EPD/Environmental Emergencies and Land Remediation Branch)*

Teck is also involved with the Upper Columbia White Sturgeon Recovery Initiative's (UCWSRI) Technical Working Group. The UCWSR's Technical Working Group provides detailed planning and implementation for conservation and recovery activities relating to upper Columbia River White Sturgeon. The UCWSRI membership includes BC Hydro, Bonneville Power Administration, the Ktunaxa Nation, Columbia Power, the Confederated Tribes of the Colville Reservation, the Freshwater Fisheries Society of BC, and the Spokane Tribal Fisheries. (*ESSPD/Ecosystems Branch)*

Compliance and Enforcement

Teck is authorized to operate in the BC under several provincial statutes and is subject to multiple regulations. Discharges of waste to the environment are permitted under the Environmental Management Act (EMA) subject to specific terms and conditions. As a permittee under EMA, Teck is

subject to regular inspections and routine compliance verification by ENV which includes both site visits and audits of monitoring data and other record keeping requirements.

In the event of non-compliance with permit or other regulatory requirements Teck may be subject to enforcement actions including warnings, violation tickets, orders, permit sanctions, administrative penalties, and for serious offences, court prosecutions.

In 2017, court penalties issued under EMA totalled approximately $2.7 million. Almost half (41%) of the total value of penalties ($1.1 million) were related to cases involving Teck. Many of these cases had additional charges under other statutes, notably the federal Fisheries Act.

Additionally, the Ministry publicly reports the names of companies, including Teck, and individuals charged under EMA and other environmental statutes. This information is provided in Quarterly Environmental Enforcement Summary reports and the online searchable Natural Resource Compliance and Enforcement Database.

The Ministry will continue to monitor Teck compliance, in collaboration with other agencies, including the federal government to ensure all permit and regulatory requirements are met.

Closed Mines with Long-Term Liability Issues

A number of mines previously operated by Teck continue to pose long-term liability issues for the Province, including:

Pinchi Mercury Mine

The former mercury mine is located in the traditional territory of the Tl'azt'en Nation and the Nak'azdli Band in central BC, approximately 25 Km northwest of Fort St. James. It operated in two periods – first in the early 1940s and then from 1968 to 1975 and the mine was placed in care and maintenance from 1975 until 2010.

Decommissioning work began in September 2010 and was completed in August 2012. Activities consisted of portal sealing, off-site disposal of hazardous waste materials, removal of above ground structures, consolidation of waste materials in the west zone pit, and capping of former workings areas.

ENV's Land Remediation Section is currently involved with:

- assessment of residual calcine wastes historically discharged into the adjacent Pinchi Lake;
- review of ongoing monitoring and ecological risk assessment studies as part of the long term management plan; and
- review of groundwater conditions throughout the general site area as well as the historical processing facilities, tailings pond and residual calcine deposit area.

Tulsequah Chief

Located in the traditional territory of the Taku River Tlingit First Nations, the former metal mine was operational from 1950-1957. The mine site has left a legacy of acid rock drainage issues, raising concerns among First Nations and stakeholders, including the State of Alaska.

According to an Aquatic and Ecological Risk Assessment report commissioned by BC in the fall 2016, the waters in the immediate vicinity (within approximately 1 Km) of the mine site pose an unacceptable risk to fish, fish eggs, and invertebrates. A second reach extending 2.5 Km downstream also indicate water quality impacts.

Since its initial operations, two companies have attempted to revive Tulsequah Chief Mine and failed, entering bankruptcy protection before remediation or water treatment efforts could be undertaken. The mine was acquired by Chieftain Metals in 2010 with the agreement that the company would address acid rock drainage as part of re-development of the mine. After seven months spent getting the water treatment facility into place and operational, issues arose, and costing skyrocketed. Chieftain Metals subsequently went into court-ordered receivership in September 2016.

In Canada, insolvency, receiverships, and bankruptcy are three legally distinct states of being. Insolvency is a financial condition, while bankruptcy is a legal status. Chieftain Metals is both insolvent and in a court-ordered receivership. The Government of B.C. must receive permission from the receiver or the court before exercising any “rights or remedies.”

The conditions of the receivership do not exempt the receiver or the debtors from compliance with statutory or regulatory provisions relating to health, safety or the environment. Chieftain Metals failed to meet the final October 2018 deadline to submit outstanding information relating to the remediation and reclamation of the site. On November 6, 2018, the Government of British Columbia released a Request for Proposals with the objective of scoping costs, timelines and options for the long-term remediation of the site. The proposals are currently under review to determine the successful candidate and the State of Alaska will be requested to participate in the review of the actual remediation and reclamation plan. Early in 2019 a proposal from SNC-Lavalin, in collaboration with SRK Consulting, was selected as the top candidate for the development of a site remediation and assessment plan for Tulsequah Chief Mine. The full remediation plan for Tulsequah Chief Mine (including timelines and costing) is slated for completion by September 2019.

In December 2018, the Chief Inspector of Mines sent a letter to Chieftain Metals and the receiver detailing ongoing non-compliances at the mine site, and stating that the letter was a Final Notice to Chieftain to remedy the non-compliances. As such, the letter indicated the Government of British Columbia’s intention to begin implementing remediation at the mine site once an appropriately detailed plan was developed in order to remedy pollution under section 17 of the *Mines Act*.

The Government of British Columbia continues to explore all possible options for holding all past and present owners of the Tulsequah Chief Mine accountable, and to maintain compliance with the regulatory requirements associated with operating a mine in British Columbia.

Sullivan

Located in the traditional territory of the Ktunaxa Nation and Shuswap Band in southeast BC surrounding the City of Kimberley, the former lead-zinc sulphide mine was operational for over a century from 1892 to 2001. In addition to open pit/underground mining and milling/ore concentrating, other mining/industrial activities at the site included fertilizer and pig iron/steel production.

Over the life of the mine, approximately 150 million tons of ore were extracted with concomitant production/disposal of 9.75 million tons of waste rock, 92.6 million tons of tailings, 7 million tons of phosphogypsum and 3.2 million tons of iron oxide wastes. Solid/tailings wastes were disposed at waste rock dumps or tailings ponds.

The total area of mine disturbance is over 1,100 hectares. The tailings ponds cover an area of approximately 640 hectares. Wastes from mining activities, including acid rock drainage (ARD) and the by-products of the fertilizer operations were released into adjacent creeks and the St. Mary River throughout much of the 20th century.

The mine was permanently closed in 2001. Decommissioning and reclamation works began in 1972 and were completed in 2006. Decommissioning/reclamation activities consisted of mine access closure, consolidation/covering of waste rock materials, removal of above ground structures, and capping of former workings and tailings pond areas. Current operational works consist of surface water/groundwater interception systems to capture ARD contaminated water with transport by pipeline to a water treatment plant. The design period for ARD water capture/treatment is in perpetuity.

ENV's Land Remediation Section is currently involved with review of a risk assessment for the overall mine site as required, including review of detailed site investigation, remediation plan, and risk assessment (human health and ecological) reports as well as risk management and long term monitoring plans.

Land Remediation Section has also initiated a process for designation of the site as an Environmental Management Area under the *Environmental Management Act* owing to the widespread offsite migration of groundwater contamination primarily from the tailings ponds. This involves risk assessment review as well as development of a Wide Area Remediation Plan, community consultation and First Nations engagement.

Approval of the future Environmental Management Area would be as an Approval in Principle under the Contaminated Sites Regulation.

NE Coal / Quintette

Located approximately 20 Km south of Tumbler Ridge in northeast BC, the former steelmaking coal mine was operational from 1982-2000.

In 2012 Teck completed a feasibility study to re-open the mine and by 2014 had received all required permits to restart production. However, Teck deferred restarting the operation and placed the mine on

care and maintenance due to unfavourable market conditions. The project is fully permitted and able to proceed should Teck decide to move forward.

The Mesa portion of the project is contributing selenium to Murray River.

Sunro Copper

A former copper mine located approximately 3.3. Km northeast of the community of Jordan River on Vancouver Island.

The mine was brought to the Ministry's attention in June 2014 due to the concerns of the local salmon enhancement group that salmon spawning was impacted by discharges from mine wastes located along the bank of the upper Jordan River.

The Site was subsequently classified under ENV's site classification protocol as high risk due to identified impacts on soil and water from the historic mine wastes. ENV issued investigation and reporting requirements to Western Forest Products Inc. and Teck Resources Limited, who were identified as the current and former owners of the Sunro Mine Site.

ENV, Teck, Western Forest Products Inc. and a group of concerned citizens (Jordan River Round Table) hold a meeting each year to discuss the work conducted that year and the work planned for next year.

To date, Teck, with their environmental consultants, SNC Lavalin and Azimuth, have completed the investigation and delineation of soil contamination at the site.

In 2018, an assessment of surface water, porewater and groundwater samples across the Site and within the adjacent Jordan River was completed to determine the water quality and volume of discharges from the deposited mine wastes to the Jordan River. An initial Ecological Risk Assessment targeting salmonids in the area was also conducted.

ENV is reviewing the 2018 sampling results and Ecological Risk Assessment and will be responding to the companies on next steps.

Development of preferred remedial options based on review of the site investigation and Ecological Risk Assessment reports is planned for 2019 with implementation of the chosen remediation option in 2020.

The findings of the studies conducted in 2018 and the work planned for 2019 will be presented to the stakeholder group at a meeting in late June, 2019.

Prepared by: Michel Ryan-Aylward, Senior Policy Advisor, Strategic Policy Branch, ESSPD

November 20, 2019

GOVERNMENT OF BRITISH COLUMBIA – UPDATE FOR INFORMATION
Tulsequah Chief Mine

The Tulsequah Chief historic mine site is located approximately 65 kilometres northeast of Juneau, on the Tulsequah River in British Columbia, in the traditional territory of the Taku River Tlingit First Nation (TRTFN). Mining activities carried out at the mine between 1951 and 1957 by Cominco (now Teck Resources Limited) have left a legacy of acid rock drainage issues.

Since its initial operations, two companies have attempted to revive Tulsequah Chief Mine and failed, entering bankruptcy protection before remediation or water treatment efforts could be undertaken. The mine was acquired by Chieftain Metals in 2010 with the agreement that the company would address acid rock drainage as part of re-development of the mine.

Chieftain Metals subsequently went into court-ordered receivership in September 2016. This is a federally regulated statute. s.13
s.13 This restriction negatively impacts the Government of B.C.'s ability to exercise the many regulatory actions available under provincial statutes.

However, the conditions of the receivership do not exempt the receiver or the debtors from compliance with statutory or regulatory provisions relating to health, safety or the environment. On November 6, 2018, the Government of B.C. released a Request for Proposals with the objective of scoping costs, timelines and options for the long-term remediation of the site.

In December 2018, the Chief Inspector of Mines sent a final notice to Chieftain Metals and the
s.13; s.16

s.13; s.16 In February 2019, the Province and TRTFN collaboratively selected SNC Lavalin, SRK Consulting and Azimuth Consulting (Consultants) to develop a remediation plan for Tulsequah Chief Mine.

Over the course of 2019, the Consultants undertook further site reconnaissance, studies and assessment. This work was combined with historical data to inform the development of the remediation plan. The State of Alaska has been involved in the review and development of remedial options to inform the remediation plan, including participation in an October 2019 technical workshop. s.13; s.16
s.13; s.16

The Government of B.C. continues to explore all possible options for holding all past and present owners of the Tulsequah Chief Mine accountable, and to maintain compliance with the regulatory requirements associated with operating a mine in British Columbia.

TRANSBOUNDARY WATERS 2019

A newsletter about mining interests and the shared rivers, watersheds and fisheries within the transboundary area of British Columbia and Alaska.

B.C.'s Environmental Assessment Act Update

In July 2017, the Minister of Environment and Climate Change Strategy (ENV) was directed to revitalize the Environmental Assessment (EA) process "to ensure the legal right of First Nations are respected, and the public's expectation of a strong transparent process is met."

Changes to B.C.'s EA process are focused on:

- Enhancing public confidence by ensuring impacted Indigenous Nations, local communities and governments and the broader public can meaningfully participate in all stages of environmental assessment through a process that is robust, transparent, timely and predictable;
- Advancing reconciliation with Indigenous Nations; and
- Protecting the environment while offering clear pathways to sustainable project approvals by providing certainty of process and clarity of regulatory considerations including opportunities for early indications of the likelihood of success.

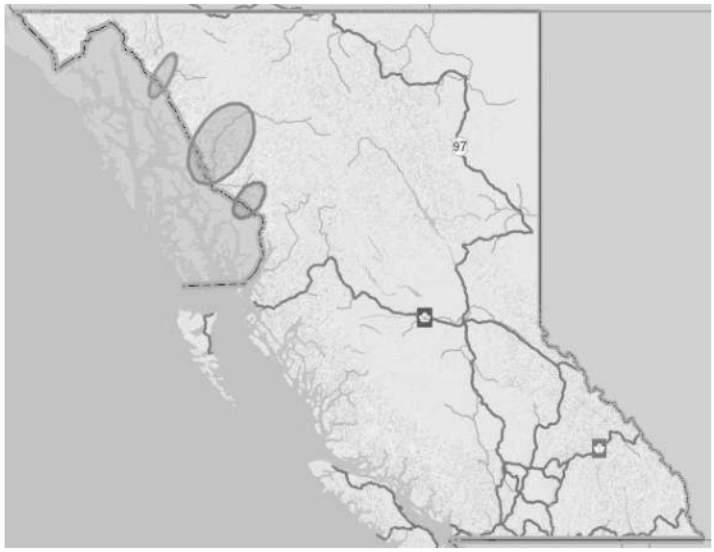
Following an extensive engagement process, a new *Environmental Assessment Act* was passed in fall 2018. In 2019, the Environmental Assessment Office has been further engaging on the development of policies and regulations to support implementation of the new Act. It is anticipated that the new EA process will be implemented in fall 2019.

For more information about the new *Environmental Assessment Act* please visit the following website: www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization

Building Relationships and Transboundary River Monitoring (B.C. Update)

Staff from B.C. and Alaska provincial/state agencies developed the Joint Water Quality Monitoring Program for Transboundary Waters. As part of this program, B.C. ENV biologists have been monitoring in the Taku, Stikine and Unuk watersheds in cooperation with the Taku River Tlingit First Nation (TRTFN) and the Tahltan Central Government (TCG) since 2017. The Taku and the Stikine watersheds are located within the traditional territories of the Tlingit and Tahltan Indigenous peoples and the Unuk watershed is located within the traditional territories of the Tlingit, Tahltan, Tsetsaut Skii Km Lax Ha and Haida Indigenous peoples.

ENV staff are working with State of Alaska colleagues to report out on results of the monitoring completed by both jurisdictions, as part of the two-year coordinated aquatic environmental monitoring program.



B.C. monitoring site locations. Red circle denotes the Unuk River, Green Circle denotes the Stikine River and purple represents the Taku River.

TRANSBOUNDARY WATERS 2019

Lisa Torunski (ENV) and Kindra Maricle (FLNRORD) with Brianna Tashoots, Tahltan Wildlife Guardian

The focus of the monitoring program is to characterize the overall health of the watersheds and monitor for impacts from mining operations and other industrial development by examining water quality, sediment quality, benthic invertebrate tissue chemistry, and fish tissue chemistry.

The project team would like to acknowledge and thank the staff and managers within ENV, B.C. Forest, Lands and Natural Resource Operations and Rural Development (FLNRORD) and external partners from the TRTFN and the TCG, for their assistance as the equipment, staff and logistical support received were invaluable to the program's success.

First Nation Wildlife Guardians rendered their assistance and were trained to facilitate quarterly water quality sampling at remote locations of northwestern B.C. To support the involvement and information requests of FLNRORD Fisheries staff, the goal of the fish sampling component was expanded to include the collection of DNA samples and/or otoliths from any Dolly Varden captured.

These collaborative field trips were excellent opportunities to build cooperative working relationships and the contacts and conversations resulted in a greater awareness of the mandates of each organization. The partnership provided participants with a deeper understanding and appreciation for the distinctions and similarities between the various approaches being employed to monitor, protect and preserve various facets of the natural environment.

We look forward to future opportunities for collaboration as we continue to foster these relationships.

Lisa Torunski (ENV) and Tahltan Wildlife Guardian, Clements Brace

Jackie Caldwell (TRTFN), Lisa Torunski (ENV), Kindra Maricle (FLNRORD) on the Taku River

Water Sampling in the B.C.-AK Transboundary Watersheds (AK Update)

Another successful year of water quality sampling is wrapping-up in the transboundary watersheds between AK and B.C. In spite of wildfires, extreme drought in southeast AK, and August snow storms in B.C. both agencies have completed their respective sampling efforts. This summer's field work compliments additional work outlined in the Joint Water Quality Monitoring Program for Transboundary waters - a two-year coordinated aquatic environmental monitoring program.

The Alaska Department of Environmental Conservation (ADEC) has led three surveys in Southeast Alaska since 2017. Lakes were surveyed in 2017, rivers in 2018, and this summer a survey of streams was completed. Data collected in all surveys include: water chemistry, sediment chemistry, biological indicators (fish and macroinvertebrates) and physical habitat measurements. Throughout all three surveys ADEC and B.C. have discussed parameters and methodologies to ensure sample results are comparable. Additionally, all three ADEC surveys are part of the U.S. Environmental Protection Agency's National Aquatic Resources Surveys (NARS). NARS provides funding, training, and sample consistency across the United States.

In both the lakes and rivers survey preliminary results indicated natural elevated mineralization due to underlying geology. Although there were limited exceedances of water and sediment quality criteria (most exceedances were metals), no discernable patterns were observed. Samples from the streams surveyed this summer are currently being analyzed. Once all the data have been verified, a final report will be completed by fall 2020, which will compare results from B.C. and AK.

Numerous local, state, federal and Tribal organizations contributed to make these surveys possible. For more information please visit: http://dec.alaska.gov/water/water-quality/monitoring/surveys/.

Transboundary Mine Updates

Johnny Mountain Mine Reclamation

Located in the Boundary Range of the Coast Mountains which drains along the Iskut River. The Johnny Mountain Mine was a remote, fly-in mine that produced ore back in the 1980's and 1990's. Until late 2005, the property had been operated and managed by more than a dozen companies resulting in a lack of remediation and reclamation for the area. Infrastructure that was left behind included a 350 tonnes per day mill building/ processing plant, three underground portals with associated waste rock portal pads, five vent raises, fuel tank farm, 1,600m airstrip, 11.5ha tailings impoundment area, landfill, roads and miscellaneous debris dumps.

SnipGold (wholly acquired by Seabridge Gold Inc in 2016), with the support of the Tahltan Nation, committed to reclaiming the historic legacy and outstanding liabilities over a multi-year timeline following the approved Closure and Reclamation Plan. Since June 2016, approximately $6 million has been spent on environmental site activities.

A dam safety review was undertaken concluding that the tailings dam was in good condition, and the implementation of regional monitoring programs identified that the former mine is not impacting sensitive downstream fish habitat. To gain an understanding of the groundwater, surface water and soil conditions at Johnny Mountain, a detailed investigation and sampling program was implemented.

Reclamation activities have been ongoing at the site and include removing spilled ore concentrate, covering existing mine openings, dismantling the abandoned fuel tank farm, upgrading the existing landfill, removing hazardous materials to appropriate waste disposal facility and disposing of non-hazardous materials within existing landfill and capping with mineral soils. Treatment of hydrocarbon contaminated soils occurred and revegetation efforts have been undertaken across disturbed areas of the site. Ongoing remediation and reclamation work is planned for the site with the end objective of the Closure Plan being to return disturbed lands and new anthropogenic landforms to their original land use.

Before and after photos of the Johnny Mt. site

Kerr-Sulphurets-Mitchell (KSM) Mine

KSM Mining Unlimited Liability Corporation, subsidiary of Seabridge Gold Inc., is the holder of the KSM Property. The project is a proposed gold, copper, silver and molybdenum mine, located 65 kms northwest of Stewart, B.C. The project received federal and provincial environmental approvals in 2014 which recognized KSM will not result in significant adverse effects. With an estimated 5-year construction and a 52-year mine life, the company expects to employ 1,522 people during construction and provide 1,407 direct jobs during mine operations. KSM is currently focused on obtaining additional operational permits and finding a partner to move the project into production.

Tulsequah Chief Mine

The Tulsequah Chief Mine is a historical copper/lead/zinc mine located about 100kms southwest of Atlin. The mine operated from 1951 to 1957, and since its closure has been the cause of historical acid rock drainage into the Tulsequah River, a tributary of the Taku River. The mine was acquired by Chieftain Metals in 2010 with the agreement that the company would address the acid rock drainage as part of re-development of the mine. Chieftain Metals subsequently went into court-ordered receivership in September 2016. The B.C. government continues to monitor the ongoing receivership proceedings and explore all possible options for holding all past and present owners of the Tulsequah Chief Mine accountable.

A report was submitted in February 2018, as required by the Chief Inspector of Mines, however it was determined that the report did not contain details regarding costing, timelines or the treatment of sludge on site. Chieftain Metals failed to submit this outstanding information by the October 2018 deadline; resulting in the Chief Inspector of Mines issuing a final letter documenting the outstanding Orders issued as well as continued non-compliance. The Chief Inspector of Mines indicated that the mine was considered a closed mine as per the definitions under the *Mines Act*.

The Government of B.C. subsequently issued a Request for Proposals (RFP) for the development of a Remediation and Reclamation Plan for the mine in November 2018. The RFP specified that the final report must include: a site hazard assessment; a risk analysis; clear identification of various remediation methodologies for each mine component; and a detailed estimation of costs to implement the remediation activities.

In January 2019, representatives from the Government of B.C. participated in a collaborative RFP review process with representatives from the TRTFN. All parties arrived at a consensus recommendation and SNC-Lavalin was awarded the contract. Throughout 2019, contractors have undertaken data gap analysis and site visits to gather soil and water samples, conduct an inventory of existing hazards on site, undertaken a more thorough

review of existing mine portals and underground workings and contamination pathways. An initial site review has occurred throughout the historic mine area, including the Big Bull mine site, and importantly this work will inform the remediation and reclamation plan going forward.

In fall 2019 a workshop took place amongst the contractors, the Government of B.C., TRTFN and the Alaskan Department of Environmental Conservation for the purpose of aligning remedial options with site data, and addressing risks and opportunities. The final remediation and reclamation plan is anticipated by the end of 2019, which will inform next steps, timelines and costing.

Red Chris Mine

The Red Chris Mine is an open pit copper-gold mine located 80 km south of Dease Lake and 18 km southeast of the village of Iskut, B.C. The project received its environmental assessment certificate in August 2005 and regular production began in June 2015. The mine is currently projected to operate until 2043.

In August 2019, Newcrest Mining Ltd. (Newcrest) acquired a 70 percent joint venture interest in the Red Chris Mine, and Imperial Metals Corporation retains the remaining 30 percent interest. As a part of the transfer, the *Mines Act* permit has been amended to update the deliverable dates for most of the required plans to allow Newcrest time to make revisions to these plans. The Mine Development Committee process is expected to commence in the winter, in order to provide guidance in the development of the revised plans.

Brucejack

Brucejack Mine is wholly owned by Pretivm and is a high-grade gold underground mine located approximately 65km north of Stewart, B.C. and is accessed from Highway 37. Brucejack Mine received its Environmental Assessment Certificate, *Canadian Environmental Assessment Act* approval and a *Mines Act* Permit in 2015. Construction commenced in 2016, with construction of the mine site, a 57km transmission line that connects to Stewart, and a haul road that traverses the Sulphurets Glacier. The mine entered into operations in 2017, with the first production of gold-silver bars in June 2017. A ramp-up in production in 2019 will result in a 14-year life of mine. Ongoing exploration has continued through 2019, targeting deep holes under the Valley of Kings deposit and other underground deposit areas.

Upcoming Events

The Alaska Miners Association 2019 Convention and Trade Show took place between November 3–9, 2019 at the Dena'ina Center in Anchorage, Alaska. More information is available at www.alaskaminers.org/convention-information.

The Alaska Miners Association (AMA), a non-profit corporation headquartered in Anchorage with branches

throughout Alaska, is celebrating their 80th year of advocating for and promoting responsible mineral development in the state of Alaska. Their annual Convention and Trade Show is the largest mining event in the state; offering technical sessions, educational short courses, and networking events throughout the week. The Alaska Department of Natural Resources hosted a booth on the vendor floor.

The 40th annual Alaska Resources Conference took place between November 20–21, 2019 at the Dena'ina Center in Anchorage, Alaska. More information is available at www.akrdc.org/conference.

The Resource Development Council for Alaska, Inc. (RDC) is an Alaskan, non-profit, m embership-funded organization comprised of individuals and companies from Alaska's oil and gas, mining, timber, tourism, and fisheries industries. RDC's purpose is to link these diverse industries together to encourage a strong, diversified private sector and grow Alaska through responsible resource development.

Association for Mineral Exploration (AME) Round-up 2020 is scheduled January 20–23, 2020 at the Vancouver Convention Centre East in Vancouver, B.C. More information is available at roundup.amebc.ca/

AME is the lead association for the mineral exploration and development industry based in B.C. Established in 1912, AME represents, advocates, protects and promotes the interests of thousands of members who are engaged in mineral exploration and development in B.C. and throughout the world. AME encourages a safe, economically strong and environmentally responsible industry by providing clear initiatives, policies, events and tools to support its membership.

The bi-annual Alaska-B.C. Bilateral Working Group (BWG) meeting is scheduled for January 22 2020, and was scheduled to align with AME's Round-up Conference.

The BWG is comprised of Alaskan Commissioners from the Departments of Environmental Conservation, Natural Resources, and Fish and Game, and British Columbian senior officials from the Ministries of Environment and Climate Change Strategy, and Energy, Mines and Petroleum Resources. The BWG meets on a bi-annual basis to oversee the work of their respective staff, as well as provide direction for the subsequent months. The secretariat function rotates between the State and the Province, and currently rests with the latter. The meeting notes are made publicly available and can be found here, along with other B.C.-AK Transboundary related materials.

The Pacific NorthWest Economic Region (PNWER) Annual Summit is scheduled July 19–23, 2020 in Big Sky, Montana.

The PNWER Annual Summit is the leading forum where people in the policy world and the business world come together to figure out solutions to regional challenges. Over 500 regional legislators, business leaders, and key decision makers will come together to explore shared challenges in the region, discuss best practices, strengthen regional relationships, and develop action plans for addressing these challenges in the future.

PNWER is recognized as the model for regional and bi-national cooperation, providing a platform for collaboration among public, private, academic, and non-profit stakeholders to work together as a region in pursuit of common goals.

November 20, 2019

GOVERNMENT OF BRITISH COLUMBIA – UPDATE FOR INFORMATION
Tulsequah Chief Mine

The Tulsequah Chief historic mine site is located approximately 65 kilometres northeast of Juneau, on the Tulsequah River in British Columbia, in the traditional territory of the Taku River Tlingit First Nation (TRTFN). Mining activities carried out at the mine between 1951 and 1957 by Cominco (now Teck Resources Limited) have left a legacy of acid rock drainage issues.

Since its initial operations, two companies have attempted to revive Tulsequah Chief Mine and failed, entering bankruptcy protection before remediation or water treatment efforts could be undertaken. The mine was acquired by Chieftain Metals in 2010 with the agreement that the company would address acid rock drainage as part of re-development of the mine.

Chieftain Metals subsequently went into court-ordered receivership in September 2016. This is a federally regulated statute. s.13
s.13 This restriction negatively impacts the Government of B.C.'s ability to exercise the many regulatory actions available under provincial statutes.

However, the conditions of the receivership do not exempt the receiver or the debtors from compliance with statutory or regulatory provisions relating to health, safety or the environment. On November 6, 2018, the Government of B.C. released a Request for Proposals with the objective of scoping costs, timelines and options for the long-term remediation of the site.

In December 2018, the Chief Inspector of Mines sent a final notice to Chieftain Metals and the
s.13; s.16

s.13; s.16 In February 2019, the Province and TRTFN collaboratively selected SNC Lavalin, SRK Consulting and Azimuth Consulting (Consultants) to develop a remediation plan for Tulsequah Chief Mine.

Over the course of 2019, the Consultants undertook further site reconnaissance, studies and assessment. This work was combined with historical data to inform the development of the remediation plan. The State of Alaska has been involved in the review and development of remedial options to inform the remediation plan, including participation in an October 2019 technical workshop. s.13; s.16
s.13; s.16

The Government of B.C. continues to explore all possible options for holding all past and present owners of the Tulsequah Chief Mine accountable, and to maintain compliance with the regulatory requirements associated with operating a mine in British Columbia.

AGENDA: Transboundary Meeting with the International Joint Commission

Monday, December 2, 2019; 12:30 PM – 4:00 PM (PST); 3:30 PM – 7:00 PM (EST)
Boardroom 4003 - 525 Capital Park
Victoria, B.C.

Attendees:

British Columbia (BC):

Ministry of Energy, Mines and Petroleum Resources:
- Peter Robb, ADM, Mines, Competitiveness and Authorizations
- Kathy Eichenberger, Executive Director, Columbia River Treaty Review Branch
- Jennifer Anthony, Director, Strategic Initiatives

Ministry of Environment and Climate Change Strategy:
- Jennifer McGuire, ADM, Environmental Sustainability and Strategic Policy
- Laurel Nash, ADM, Environmental Protection Division

Intergovernmental Relations Secretariat:
- Craig Windrim, Manager, U.S. Relations (observer)

Global Affairs Canada (GAC):

- Sylvain Fabi, Executive Director, U.S. Transboundary Affairs
- Anna Sharkova, Policy Analyst, U.S. Transboundary Affairs

International Joint Commission (IJC):

- Pierre Béland (Canada)
- Jane Corwin (U.S.)
- Merell-Ann Phare (Canada)
- Robert Sisson (U.S.)

#	*Time*	*Item*	*Lead*
1	12:30-12:45pm	Welcome and Introductions	All
2	12:45 -2:00pm	Overview of the Framework for the BC Transboundary Working Relationships with AK: • Existing frameworks and agreements; • Existing working groups and structures; • BC Projects; and • Key accomplishments to date.	BC
3	2:00-2:30pm	• Other transboundary regions: WA, MT	BC

		• BC's ongoing focus on "Mining Done Right"	
4	2:30 -3:00pm	Break	
5	3:00 -3:30pm	Background and Debrief from Alaska visit	IJC
6	3:00 -3:30pm	Summary	BC

Attachments:

1. Agenda
2. Mission and Role of the IJC
3. Boundary Waters Treaty of 1909
4. IJC Commissioner's Biographies
5. B.C.-Alaska Memorandum of Understanding and Cooperation (2015)
6. B.C.-Alaska Statement of Cooperation on the Protection of Transboundary Waters
7. Reciprocal Procedures (attachment to the Statement of Cooperation on the Protection of Transboundary Waters)
8. June 2019 BWG Summary Notes
9. B.C. Project List
10. Transboundary Waters Newsletter 2019
11. Joint Water Quality Monitoring Program for Transboundary Waters
12. Tulsequah Briefing Note
13. Alaskan Commissioner's Op-ed in the Juneau Empire
14. B.C.-Washington Environmental Cooperation Agreement (1992)
15. Memorandum of Understanding between the Washington State Department of Ecology and the British Columbia Environmental Assessment Office (2003)
16. Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy between the Province of British Columbia and the State of Montana (2010)
17. Environmental Cooperation Arrangement between the Province of British Columbia and the State of Montana (2003)
18. Letter of Commitment from ENV Deputy Minister Zacharias to Director McGrath of the Montana Department of Environmental Quality (October 10, 2019)
19. Letter of Commitment from Director McGrath of the Montana Department of Environmental Quality to ENV Deputy Minister Zacharias (October 16, 2019)
20. U.S. Senator's Letter to Premier John Horgan
21. Response to the U.S. Senators and the Technical Appendix
22. Media Release of the IJC Commissioner's August Alaska Visit
23. Senators Murkowski and Sullivan's Letter to Secretary Pompeo
24. Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report
25. Teck Summary Company Profile (Internal ENV backgrounder) (March 2019)

<table>
<tr><th colspan="3">ANNOTATED AGENDA:</th></tr>
<tr><th>#</th><th>Item</th><th>Lead</th></tr>
<tr><td>1</td><td>Welcome and Introductions</td><td>All</td></tr>
<tr><td></td><td colspan="2">The purpose of this meeting with the IJC is to build good will with the IJC Commissioners, ground truth the many examples of continued emphasis on “Mining Done Right” in B.C. and explain the success of existing cooperative relationships, agreements and structures that B.C. has in place to collectively manage transboundary issues at the subnational level.

The IJC Commissioners have indicated they are interested in hearing how B.C. is working with our transboundary partners in AK, MT and WA to improve harmonization, transparency and communications.</td></tr>
<tr><td>2</td><td>Overview of the Framework for the BC Transboundary Working Relationships with AK:
• Existing frameworks and agreements;
• Existing working groups and structures;
• BC Projects; and
• Key accomplishments to date.</td><td>Peter Robb</td></tr>
<tr><td></td><td colspan="2">BACKGROUND:
Existing frameworks and agreements
• The Memorandum of Understanding and Cooperation between the State of Alaska and the Province of B.C. (MOU) was signed in November 2015.
• A Statement of Cooperation on the Protection on Transboundary Waters (SoC) was signed by B.C. and Alaska in October 2016, to formalize and build upon the cooperative relationship between the two jurisdictions.
Existing working groups and structures
• Prior to the establishment of the SoC and MOU with Alaska, many transboundary issues were elevated to the political/federal level. Issues and concerns can now be raised through the Bilateral Working Group (BWG) for further discussion and collaborative resolution. Staff members of the working group meet on a monthly basis to resolve any outstanding items of concern, provide project updates, and action commitments stemming from the annual BWG meetings.
• The SoC establishes the BWG, the Technical Working Group on Monitoring (TWG-m), and requires the development of the Reciprocal Procedures to guide cooperation on environmental assessments and permitting between the two jurisdictions.</td></tr>
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- The Reciprocal Procedures as set out in the SoC, describe how B.C. and Alaska will collaboratively work together. A joint Reciprocal Procedure was developed and approved by the BWG that is meant to achieve the following outcomes:
  - More clearly define existing procedures used by provincial ministries to ensure active engagement by state agencies in the review and permitting of lode mines subject to British Columbia's Environmental Assessment Act (BCEAA), Mines Act (BCMA), and Environmental Management Act (BCEMA);
  - Define new procedures that will be used by state agencies to notify provincial ministries when a state permit may be required for a mine proposed in British Columbia or a mine proposed in Alaska may result in environmental impacts in British Columbia; and
  - Define new procedures for how state agencies and provincial ministries will notify each other about certain federal environmental review processes.
  - Section 4 of the Reciprocal Procedures allows for the BWG to identify projects or processes, direct appropriate actions, or develop procedures, as necessary, related to Province of British Columbia participation in Alaska's permitting processes.
- As part of that process, B.C. and Alaska have developed a master project list for all mining activities occurring in the transboundary area.
- The Communications Plan was developed for the purpose of enhancing transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the Transboundary Region, including the Alsek, Stikine, Taku and Unuk watersheds and marine waters. The Communication Plan sets out how the parties to the SoC will enhance communication with all interested parties in the region.
- The Transboundary Waters Newsletter was developed as a component of the Communication Plan. Since 2017, an annual newsletter has been published to provide the public and stakeholders with an overview of major activities within the transboundary region. The most recent issue includes the following topics: B.C.'s Environmental Assessment Update, Building Relationships and Transboundary River Monitoring (B.C. update), Water Sampling in the B.C.-AK Transboundary Watersheds (Alaska update), Transboundary Mine Updates (B.C. only), and highlights Mining-Related Events.
- The Joint Water Quality Monitoring Program for Transboundary Waters is a collaborative initiative operating under the guidance of the Technical Working Group on Monitoring. The program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, Tribes, First Nations and industry. The focus of the monitoring program is to characterize the overall health of the watersheds and monitor for impacts for mining operations and other industrial development in these transboundary waters.

- Some examples of the program's data collection efforts include:
    - cataloguing recent and historic water quality, water quantity and bioassessment data;
    - conducting a Traditional Ecological Knowledge survey;
    - implementing the Alaska Monitoring and Assessment Program; and
    - conducting supplemental water quality monitoring projects in transboundary watersheds.
    - BC will also expand its Biomonitoring Network (CABIN) protocols to measure change in biological communities to assess freshwater ecosystem health.
- An Interim Monitoring Report summarizing existing data, data gaps, and data collected will be provided to the BWG in January 2020. A final report will be prepared in 2020 summarizing all monitoring data collected.
- The most recent BWG meeting was held in June 2019, and was the first BWG meeting for the newly appointed Alaskan Commissioners. The purpose of the meeting was to introduce the Alaskan Commissioners to B.C. representatives and Executive, explain the BC-AK frameworks (MOU, SoC, BWG) and other key components of the collaborative relationship between the Province and the State. The next meeting of the BWG is scheduled for January 22, 2020.

BC Projects

- There are several major mining projects in Northwest BC that are of interest to AK, including Tulsequah, Johnny Mountain, Red Chris, KSM, Galore and Red Mountain:
    - **Tulsequah**: The Tulsequah Chief historic underground mine (Mine) is located approximately 120 kilometres south of Atlin on the Tulsequah River, in the traditional territory of the Taku River Tlingit First Nation (TRTFN). s.16

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- **Red Chris**: The Red Chris Mine is an open-pit cooper-gold mine located within the traditional territory of the Tahltan Nation. Tahltan members currently make up close to 35 percent of the Mine's workforce. The mine is 18km south of the Village of Iskut and is also near Dease Lake. In August 2019, the transaction for the sale of Red Chris Mine to Newcrest Mining Ltd was finalized. Newcrest acquired 70% ownership, and Imperial Metals will retain 30% interest in the Mine. A Five-Year Plan and Reclamation Program was received from Red Chris Development Corporation (RCDC) in June 2018, and Tahltan First Nation and the Province provided comments regarding the plan in late 2018 and early 2019. The Mine Development Review Committee (MDRC) was paused during the sale of the Mine. Following the completion of the transaction, the Province, Tahltan and Newcrest are currently planning a meeting to discuss the comments brought forth during the 5 Year Mine Plan Review.
- **KSM**: KSM Mining ULC, subsidiary of Seabridge Gold Inc., is the holder of the KSM property. The project is a proposed copper and gold open pit mining project located 65km northwest of Stewart, B.C. The project is expected to have an average ore extraction rate of approximately 130 000 tonnes per day over an anticipated 52-year mine life. The project received federal and provincial environmental approvals in 2014 and recognized KSM will not result in significant adverse effects. With an estimated 5-year construction and a 52-year mine life, the company expects to employ 1522 people during construction and provide 1407 direct jobs during mine operations. KSM Mining ULC has submitted three applications related to the Iron Cap Exploration Adit (ICEA) Project, to facilitate further exploration into the Iron Cap Deposit. This includes a *Mines Act* Notice of Work (NoW) Application, an application to amend *Environmental Management Act* (*EMA)* Effluent Permit 106814, and a Water Licence application under the *Water Sustainability Act.* The proposed ICEA Project is wholly within the larger project area of the KSM Mine Project, adjacent to the Iron Cap deposit, within the Mitchell Valley. The proposed ICEA project is currently under review, led by the Major Mines Office.
- **Galore**: Galore Creek is an open pit cooper/gold/silver project in the Thompson-Nicola Region of northwest BC, with an anticipated production

capacity of up to 60,000 tonnes per day. The expected mine life is 25 years. The Galore Creek Project received provincial and federal environmental assessment (EA) approvals and all permits required to commence construction in 2007. Galore Creek Mining Corporation (GCMC) started construction activities within the M-230 permit area (Galore Valley) in 2007. A limited amount of mine site infrastructure development including roadwork, tunnel construction staging area, and expansion of the existing camp was initiated before the Project was halted in late 2007. The Project remains on care and maintenance.

- **Red Mountain**: The Red Mountain project is 15 km northeast of Stewart, B.C. and anticipates producing approximately 1000 tonnes of mineral ore per day or 365,000 tonnes per year, over an operational mine life of six years. The project received their EAC on October 5, 2018 and their approval from CEAA on January 14, 2019. The Major Mines Office waiting on IDM/Ascot to confirm permitting timelines. To date, we do not have any new information regarding a timeframe for when this information will be provided.

Key accomplishments to date

- Through the MOU and SoC, B.C. and Alaska have collaborated to develop a number of initiatives including:
  - Establishing the BWG and the TWG-m.
  - Developing reciprocal procedures that ensure Alaska has an opportunity to provide input into B.C.'s regulatory processes and decisions, as well as providing the U.S. EPA and local interest groups in the U.S. a channel through Alaska to engage with B.C.
  - Alaska has provided input on several of B.C.'s regulatory activities (e.g. *Mines Act* amendments, B.C.'s reclamation policy, and remediation plan for Tulsequah).
  - Development of a master project list of all mining activities (from early exploration to major projects) occurring in the transboundary area.
  - Development of a Communications Plan to enhance transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the transboundary region. This includes a transboundary website that is accessible to the public.
  - Establishing the Joint Water Quality Monitoring Program for Transboundary Waters as a collaborative initiative operating under the guidance of the TWG-m. This program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, U.S. Tribes, Indigenous Nations and industry.

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- B.C.'s goal is to continue to build upon the momentum of these efforts to ensure continued protection and oversight within the transboundary waters region.

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s.16 Alaska has been invited and accepted to join technical working groups regarding the clean-up of the mine.

BC MESSAGES:

- The existing structures in place have proven highly effective and successful in focusing the dialogue between Alaska and B.C. on key issues such as water quality in the transboundary region, and remediation efforts at the Tulsequah Chief Mine;
- The members who participate at these tables and forums, who have a vested interest in seeing issues resolved are supportive of the mechanisms in place and see no need for federal intervention, and are supportive of existing frameworks; this same message is being expressed by B.C.
- The Alaskan Commissioners Fiege, Brune and Vincent-Lang expressed this support and opinion clearly in a June 2019 Op-Ed in the Juneau Empire regarding their commitment to maintaining both high water quality standards and responsible mineral development in the transboundary waters between Southeast Alaska and B.C. The article referenced the collaborative relationship the State and Province have fostered through the establishment of the MOU and SoC. s.16

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- NGO's who have been invited to engage at a deeper level on Tulsequah have stated that a federally led IJC process would be a "complicating factor" on Tulsequah where significant work is collectively underway;

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s.16 These opinions are being freely expressed by those who are engaged in the transboundary discussions with B.C.; and present a more fulsome view of the work underway than is currently being captured by the press and Senators.

3	• Other transboundary regions: WA, MT • BC's ongoing focus on "Mining Done Right"	Jennifer McGuire Peter Robb
	BACKGROUND:	

Other transboundary regions: Washington

- BC and Washington State have enjoyed a collaborative working relationship since the creation of the Environmental Cooperation Agreement in 1992. The Environmental Cooperation Agreement and the Environmental Cooperation Council have a successful history of promoting and coordinating mutual efforts to ensure the protection, preservation and enhancement of our shared environment for the benefit of current and future generations.
- The Agreement has proven to be very effective model and was recently renewed in 2018. Over the years cooperative efforts have focused on:
    - water quality;
    - water resource management;
    - regional air quality;
    - solid hazardous waste;
    - wetlands protection; and
    - coastal and ocean management.
- In June 2001, the Washington Department of Ecology and the B.C. Ministry of Environment and Climate Change Strategy entered into a Memorandum of Understanding regarding Environmental Assessments. Under this MoU the state and province make every effort to share information, consult with one another, and coordinate their work on environmental issues that have the potential to affect resources and residents in the border region. In keeping with these agreements, provincial and state regional offices are included in the distribution of environmental assessment notifications for major projects located within 100km or less from the border between the two jurisdictions.

<u>Nooksack River Watershed Project</u>

- Shellfish beds located on the mouth of the Nooksack River have experienced prolonged harvesting closures for over two decades due to fecal bacteria contaminated waters. The Nooksack River watershed has seen an overall decline in water quality and ecosystem health due to urban and agricultural development in the watershed.
- Bertrand Creek and the Fishtrap Creek are two large sub-basins of the lower Nooksack River watershed that straddle the international boundary. Both Bertrand Creek and Fishtrap Creek watersheds are located about half in BC, Canada (Aldergrove and Abbotsford area) and half in Washington (WA), USA.
- In December 2016, representatives from Canada and the US, along with local stakeholders, formed a Water Quality Task Group to understand the source of water quality concerns and establish a direction to improve watershed health.

- As an outcome of the WQTG, the Nooksack River Transboundary Technical Collaboration Group (TCG) was established in August of 2018 to implement a three-year work plan to:
  - Reduce fecal coliform bacteria contamination at transboundary stream locations of the Nooksack Watershed.
  - Maintain communication at the operational level among TCG members.
  - Facilitate communication at the management level among TCG members.
  - Design and implement BC/WA joint actions described in the TCG's three-year transboundary work plan (Work Plan).
  - Exchange updates related to jurisdiction-specific actions in the work plan.
- Through the TCG this allows BC and WA to harmonize our monitoring and respond and follow-up, in a timely manner, on any issues in the watershed. This relationship has resulted in improved water quality crossing the border.
- In 2019, due to water quality improvement, the spring harvest season was re-opened in the Conditionally Approved portion of the growing area. While harvest in the Conditionally Approved area is now allowed January through September, the area remains closed to harvest from October-December each year due to fall season elevated concentrations of fecal coliform bacteria in the marine water.
- The project has entered its second year of implementation and will end August of 2021.

<u>Imperial Metals</u>

- The Imperial Metals application for a Mines Act permit in the Silverdaisy area is still under review. The Statutory Decision Maker is continuing to conduct a thorough and comprehensive review of the application based on input from numerous parties and Indigenous nations. A decision is expected to be made early in the new year.

Other transboundary regions: Montana

- The foundation of BC and Montana's collaboration on regional ecosystems and shared protection of transboundary waters is captured in the 2003 Environmental Cooperation Arrangement and underpinned by the Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy, which also provides for reciprocal opportunities for Montana to participate in BC's environmental assessment process.
- In recent years BC and Montana have focused on assessing and managing transboundary impacts from mines in the Elk Valley through the Lake Koocanusa Research and Monitoring Working Group.

- The working group is a cross-border forum through which site-specific criteria and water quality guidelines for the Koocanusa Reservoir are discussed and recommended. It has established common resources for open sharing of data and information by our two jurisdictions. It includes representatives from US federal and state agencies, First Nations and US Tribes, stakeholders, industry, non-governmental organizations and experts.
- The working group is currently focused on finalizing draft water quality objectives/criteria for selenium in Koocanusa Reservoir, targeting completion by 2020. Additional objectives and criteria for other substances could also be developed in the future.
- In the fall of 2019 the Deputy Minister of Environment and Climate Change Strategy and Director of Montana's Department of Environmental Quality exchanged letters of commitment which confirm our shared goal of aligning selenium water quality objectives and criteria for the Koocanusa Reservoir in 2020; and established a new commitment to jointly develop annual work plans moving forward. The joint work plans will identify shared priorities and the steps needed to achieve those goals on an annual basis, starting with 2020's focus on adopting aligned selenium water quality objectives and criteria.
    - The 2020 work plan is currently being finalized.
    - B.C. intends to provide the Ktunaxa Nation Council opportunities to review and provide input before the work plan is adopted.
- Participation and support from First Nations is very important to BC. Working closely with Montana we have recently expanded the role of representatives from First Nations and US Tribes on a key technical sub-committee of the working group. BC is also in discussions with the Ktunaxa Nation Council to explore pathways for collaborative development of BC's water quality objective that will be adopted in the BC portion of Koocanusa Reservoir.
- In November, 2019 BC and Montana collaborated to host the annual face to face meeting of the Lake Koocanusa Monitoring and Research Working Group in Whitefish, Montana. Alongside the working group meetings, two public panels were held in Libby and Eureka to provide the public opportunities to ask questions from ministry, industry and non-governmental representatives about the working group, the activities underway in the Elk Valley, and the work underway to monitor and assess potential impacts on US citizens and resources.

BC's ongoing focus on "Mining Done Right"

- On June 13, 2019, a week before the June 18 BWG meeting, 8 Senators from B.C.'s neighboring states wrote to Premier John Horgan (PJH) regarding the work

in congress the Senators have undertaken to "dedicate attention and resources to concerns regarding U.S.-B.C. transboundary watersheds".

- BC staff from EMPR, ENV, and IGRS worked collaboratively to provide a comprehensive response to the Senator's letter. The response included a letter from PJH, as well as a technical appendix which went into further detail on the topics mentioned in the letter.
- Topics included in the letter exemplify BC's commitments and ongoing focus on "Mining Done Right".
    - The Province has given significant attention, engagement and resources to implement legislative and regulatory changes to strengthen industry safety and oversight. These efforts were most recently emphasized in B.C.'s Budget 2019, in which $20 million of new funding was allocated towards mining oversight. Prior to Budget 2019, the requirements for tailings storage facilities were significantly strengthened, including the requirement for an Independent Tailings Review Board; as well as mandating that all new mines follow modernized and increased safety requirements. All mines in B.C. must also adhere to stringent requirements for tailings storage facilities.
    - The currently proposed *Mines Act* amendments will support and formalize recent organizational changes and enhance compliance and enforcement provisions.
    - Budget 2019 enabled EMPR to separate its regulatory authorities with the creation of a new Mines Health, Safety and Enforcement Division, distinct from the Mines Competitiveness and Authorizations Division. Budget 2019 also announced a new Mine Audits and Effectiveness Monitoring Unit (Audit Unit) as an oversight unit separate and independent from EMPR's other regulatory functions.
    - The proposed *Mines Act* amendments will reflect the new two-division structure, separate decision making for permits away from health, safety and enforcement, and provide the Audit Unit with the authority it needs to fulfil its oversight mandate.
    - The proposed *Mines Act* amendments will also:
        - Strengthen compliance and enforcement provisions – for example by strengthening the ministry's the ability investigate incidents on mine sites and take action to respond to dangers to health and safety or the environment, and
        - Strengthen government's ability to ensure that reclamation and other environmental obligations are met including during insolvency proceedings.

- B.C. has strengthened the *Environmental Management Act*, which enables us to recover costs of environmental clean-up directly from the spiller or polluter; clarifies requirements for restoration; and increases penalties for incomplete restoration. Additionally, a new *Environmental Assessment Act* is being implemented in the fall of 2019. The new *Act* includes a number of changes to enhance public confidence, advance reconciliation with First Nations and protect the environment while offering clear pathways to sustainable project approvals. Among the changes are new tools to enhance compliance and enforcement, including administrative monetary penalties of up to $750,000. In addition, ENV EMPR, and the Environmental Assessment Office have a Mining Compliance and Enforcement Strategic Plan that outlines B.C.'s vision for achieving enhanced protection of the environment, human health and public safety through an integrated risk-based approach to mining oversight. The Strategic Plan also formalizes the integration and coordination of the three agencies' mining compliance and enforcement policies and in 2018 they published a joint "Risk Management Framework for Mining in BC", formalizing how the agencies practices risk management for mining both independently and collectively.

- As part of our commitment to true and lasting reconciliation with Indigenous Peoples in British Columbia, B.C. has recently tabled draft legislation, *Declaration on Rights of Indigenous People Act,* that supports the full adoption and implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Calls to Action. B.C is the first provincial jurisdiction to pass legislation (unanimously on Nov 26/19) to implement the UN Declaration, which will form the foundation for the Province's work towards reconciliation in B.C. Strengthening relationships with Indigenous Nations and leveraging Indigenous knowledge and perspectives improves social and economic outcomes for Indigenous Peoples and all British Columbians.
- Beyond our internal efforts to increase mining oversight, strengthen regulatory tools and decision-making processes, and deepen engagement with Indigenous Peoples, B.C. is committed to ongoing collaboration, information sharing, engagement and joint-monitoring with our partners in the United States. This collaboration takes place through a number of shared forums and joint working groups that have been established through the bilateral agreements and Memorandum of Cooperation B.C. has signed with Alaska, Washington, and Montana.
- Beyond these collaborative government efforts, the mining industry within Canada has taken key steps towards greater compliance and regulation through initiatives such as Towards Sustainable Mining (TSM) which is a performance

system that mining companies use to evaluate and manage their environmental and social responsibilities. The TSM was established by the Mining Association of Canada (MAC) in 2004 and helps ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. Since 2004, various mining jurisdictions around the world have adopted TSM for their members, and TSM participation is mandatory for MAC members.

Trail Operations Facility (Lead-Zinc Smelter) in Trail, B.C.

- Teck Metals Ltd. operates a lead-zinc smelter in the community of Trail, B.C. referred to as the Trail Operations Facility.
- The smelter in Trail that has been in operation for over 100 years and waste discharges from it have resulted in metal contamination on properties within the city as well as in the Lower Columbia River Valley from Castlegar to the US Border (the "Environmental Management Area").
    - Approximately 12 million tonnes of slag discharged into the Lower Columbia River between 1929 and 1995
    - The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy
    - Slag material in pools is mobile and continues to be transported downstream
    - Of the 12 million tonnes of discharged slag, 10% is estimated to remain in Canada
- Teck Metals Ltd.'s discharge of slag ceased in 1995. The company has in place waste water treatment plants and retention reservoirs to capture and treat groundwater and discharged water before it is released back into the Columbia River.
- The Confederated Tribes of the Colville Reservation in the United States have taken legal action against Teck in U.S. courts for many years to hold the company liable for the slag pollution. In 2019 the US Supreme Court ordered Teck to reimburse the CTCR nearly $8.6M U.S. to cover the Tribes costs of investigating the river's pollution and for attorney fees/costs in taking the matter to court.
- 2007 and 2010 studies commissioned by the Ministry of Environment and Climate Change Strategy (ENV), BC Hydro, the Columbia River Integrated Environmental Monitoring Program (CRIEMP) and the CTCR identified a number of key facts regarding flow conditions and the presence of slag in the Columbia River including:
    - Total discharge of slag from Teck's smelter between 1929 and 1995 is estimated to be approximately 12 million tonnes.

- There is an estimated 10% of the total slag discharged remaining in Canada.
- The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy.

- The focus of recent investigations in Canada has been in an area slightly downstream of Waneta Eddy, in an important white sturgeon spawning area.
- During 2018 field work, BC Hydro did not observe any slag in the spawning area.
- ENV is also involved in reviewing remediation activities associated with surface water and groundwater discharges to the Columbia River from the Teck, Trail Operations site. This includes:
  - A Groundwater Pump and Treatment system to prevent the discharge of a large ammonium sulphate and metal plume into the river and below the community of East Trail. The first phase of the Groundwater Treatment Plant was completed in 2016 (extracting 3,500 m3/day). A second phase is currently underway.
  - Investigations and interim mitigation measures to reduce metals discharges into Stoney Creek and downstream to the Columbia River.
  - Assessment of slag deposits in the Columbia River Area Adjacent to Downtown Trail for aquatic ecological risks and to determine what remedial actions may be required.

BC MESSAGES:

If asked about BC-MT MOU

- Our government is committed to improving water quality in Lake Koocanusa by working with our partners across borders to establish science-based water quality objectives for selenium in 2020.
- Working collaboratively with Montana remains a priority for the Province and we continue to support the work of the Lake Koocanusa Monitoring and Research Working Group.
- B.C. is committed to working closely with government partners, Indigenous nations, industry and NGOs to make sure we are protecting ecosystem health in Lake Koocanusa for the future.
- B.C. and Montana have been working together to formalize our commitment to protect ecosystem health in Lake Koocanusa and align water quality objectives for selenium in 2020.

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	s.16 • In lieu of an MOU, BC and Montana are committed to developing an annual work plan and working together through the Lake Koocanusa Monitoring and Research Working Group to develop water quality objectives for selenium.	
4	Break	All
5	Background and Debrief from Alaska visit	IJC Commissioners
	BACKGROUND: *Background and Debrief from Alaska visit* • At the invitation of Senator Murkowski, three US IJC Commissioners, and the Canadian Chair, Pierre Béland, visited Alaska from August 3-5 2019. The visit to Alaska was referred to as a "fact finding mission" for the IJC Commissioners. • A transboundary roundtable discussion occurred on the last day of the Commissioners visit, and focused on Southeast Alaska's transboundary issues. Senator Murkowski and Senator Sullivan were in attendance, along with Alaskan Commissioners Brune and Fiege. Local officials, and tribal/industry/fishing stakeholders were also in attendance. s.16 • On October 22, 2019, Senators Murkowski and Sullivan wrote to Secretary of State Pompeo regarding their concern about the "lack of oversight of Canadian mining projects near multiple transboundary rivers that originate in B.C. and flow into four U.S. states, Alaska, Washington, Idaho, and Montana". The Senators outline how they have addressed the concerns to date, and state that they hope to encourage Secretary Pompeo, "to allocate similar attention, engagement, and resources to collaborative management of our shared transboundary watersheds with Minister Freeland." • The letter references the IJC's visit to Alaska and the focus of the August 5 transboundary roundtable discussion.	

	BC MESSAGES: • B.C. continues to focus efforts where it is most important, which is with our transboundary neighbors to ensure that mining concerns and issues are identified and addressed as they arise. • Those who are closest to the dialogue for the transboundary region recognize that cooperative and collaborative efforts continue to move the dial on some challenging issues, both historic and more modern within the transboundary regions. s.16	
6	Summary	Peter Robb
	BC MESSAGES: • Historically, prior to States and Provinces existing or establishing formal relationships, the Boundary Waters Treaty was a key component of successfully protecting transboundary waters. s.13 • B.C. believes we have a positive and solid working relationship with our state partners, and we are not a candidate for a reference to an IJC led process as B.C. continues to demonstrate innovation, collaboration and a willingness to tackle transboundary waters issues as they arise. Over the last 5 years B.C. has made significant strides in modernizing mining oversight not just within transboundary regions but across the sector as a whole. • B.C. has taken and will continue to take pride in the strong relationships we have formed with our transboundary neighbors.	

Transboundary Meeting with the
International Joint Commission
December 2, 2019
12:30pm – 4:00pm

Location TBD
Victoria, BC

PARTICIPANTS:
International Joint Commission: Pierre Béland, Jane Corwin, Henry Lickers, Merell-Ann Phare, Robert Sisson, Lance Yohe
Global Affairs Canada: Felicia Minotti, Anna Sharkova, Sylvain Fabi
EMPR: Peter Robb ADM Mines Competitiveness and Authorizations Division (MCAD), Kathy Eichenberger Executive Director Columbia River Treaty, Jennifer Anthony Director Strategic Initiatives, MCAD
IGRS: Pierrette Maranda, Sukumar Periwal, Craig Windram
ENV: Laurel Nash ADM Environmental Protection Division (EPD), Jennifer McGuire ADM Environmental Sustainability and Strategic Policy Division (ESSPD), Lisa Paquin Director of Intergovernmental Relations, ESSPD, Doug Hill Regional Director of Mining, EPD

AGENDA:

Time	Subject Matter	Lead(s)
12:30pm-12:45pm	Welcome & Introductions	All
12:45pm-1:15pm	Background and Debrief from Alaska visit	IJC Commissioners
1:15pm-2:30pm	Overview of the Framework for the BC Transboundary Working Relationships with AK: • Existing frameworks and agreements; • Existing working groups and structures; • BC Projects; and • Key accomplishments to date.	BC
2:30pm-3:00pm	Break	
3:00pm-3:30pm	Ongoing focus and priority areas for transboundary regions	BC
3:30pm-4:00pm	Summary	BC

Date: October 25, 2019
CLIFF: 108110

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

BRIEFING NOTE FOR DECISION

PREPARED FOR: Peter Robb, Assistant Deputy Minister, Ministry of Energy, Mines and Petroleum Resources, Laurel Nash, Assistant Deputy Minister, Jennifer McGuire, Assistant Deputy Minister, Ministry of Environment and Climate Change Strategy, Pierrette Maranda, Associate Deputy Minister, Ministry of Intergovernmental Relations Secretariat

ISSUE: B.C. meeting with the International Joint Commission on Transboundary Mining

BACKGROUND:

The International Joint Commission (IJC) for both Canada and the United States (U.S.) have an invitation to meet with British Columbia (B.C.) on December 2, 2019. The IJC is a bi-national organization established by the United States (U.S.) and Canada in 1909 under the Boundary Waters Treaty (Treaty). The Treaty created the IJC to provide a mechanism to resolve and prevent disputes between Canada and the U.S. on transboundary water issues.

Since holding its first meeting in 1912, the IJC has resolved more than 100 matters raised by the U.S. and Canadian governments. Some of these have involved B.C. jurisdictions – such as the Columbia River Treaty, the Skagit River Valley and Osoyoos Lake – and others have involved other Canadian/U.S. jurisdictions – such as the St. Mary and Milk Rivers (Alberta/Saskatchewan/Montana), and the St. Lawrence River and Niagara River / Niagara Falls (Quebec/Ontario/New York).

In exercising its dispute resolution authority, the IJC studies and recommends solutions to transboundary issues when asked to do so by both federal governments. When the IJC receives a government request (called a reference), it appoints a board with equal numbers of experts from each country. Board members are chosen for their professional abilities, not as representatives of a particular organization or region. It is generally recognized that IJC referral is a last resort for governments, particularly if the matter can be resolved at the sub-national level and without recourse to legal process.

Canada and the U.S. each appoint three IJC commissioners to four-year terms. The U.S. commissioners are appointed by the President, with the advice and approval of the Senate, and the Canadian commissioners are appointed after a competitive process by the Governor in Council of Canada.

The U.S. Commissioners were appointed at the end of 2018 and the Canadian Commissioners were appointed in May 2019.

In June 2019, the eight U.S. Senators representing Alaska, Washington, Idaho and Montana, co-signed a bipartisan letter to Premier Horgan, expressing concerns about B.C. mining practices, oversight and impacts on U.S.-B.C. transboundary watersheds. The letter specifically referenced

that the IJC did not meet in the first half of the year as usual, and thus "bilateral discussions on transboundary water issues that typically occur in conjunction with the biannual convening of the IJC" did not occur. The Premier responded the following month with a letter and technical appendix outlining B.C.'s work and ongoing collaboration at the subnational level, which was supplied by the Ministry of Energy, Mines and Petroleum Resources (EMPR), the Ministry of Environment and Climate Change Strategy (ENV) and the Environmental Assessment Office (EAO).

On August 5, 2019, one Canadian and three U.S. IJC Commissioners visited Alaska on the invitation of Alaska's U.S. Senator Lisa Murkowski for a 'fact finding mission' to gather information about concerns around transboundary impacts resulting from mining activity in B.C. The Alaska meeting included a site visit, statements from Alaska State representatives, and a roundtable with stakeholders, including Alaskan Tribes representatives, and non-governmental organizations.

Prior to this meeting in Alaska, the Ministry of Energy, Mines and Petroleum Resources were working alongside s.16 to extend an invitation to the Commissioners to visit B.C.

s.16

DISCUSSION:

Meeting with the IJC Commissioners may pose s.13
s.13

s.13 A report back to the federal governments on specific issues has occasionally been a course of action in previous fact-finding missions s.16

It is unprecedented that B.C. would extend an invitation to the IJC for a meeting on transboundary water/mining issues. s.13
s.13

In order to mitigate this challenge, B.C. can ensure that staff are well prepared, have supplemental and supporting materials to share with the IJC and facilitate the discussion to ensure it remains focused to B.C.'s key messages. Moreover, rules of engagement can be shared with the IJC in advance of the December meeting via s.16 to set the stage appropriately and
s.16

In the view of s.16 EMPR and ENV, the meeting with the IJC Commissioners presents an opportunity for B.C. to build goodwill and directly articulate the positive and cooperative effort taking place with Alaska at the subnational level to establish and implement frameworks, procedures and collaborative working groups with transboundary neighbours.

Further, B.C. has an opportunity to demonstrate that the engagement and collaboration with Indigenous Nations in B.C. in the transboundary regions is strong, and that Indigenous communities are benefiting from partnerships in sustainably developed mining projects. The focus at the technical level on collaborative transboundary waters monitoring and analysis with Indigenous Nations is an important aspect to flag to the IJC as this would be in contrast to the messaging presented in Alaska by an Alaskan Tribes representative.

s.16

s.16 Holding its own meeting with the IJC Commissioners, B.C. would reinforce that messaging.

s.16

OPTIONS:

Option 1: ADM and limited IGRS/EMPR/ENV staff attendance at face to face December meeting with IJC and s.16

s.13; s.16

Option 2: Provide written materials to the IJC Commissioners and postpone the meeting indefinitely.

s.13; s.16

s.13; s.16

RECOMMENDATION:

s.13; s.16

Approved / Not Approved

_____ _____

Peter Robb, Assistant Deputy Minister Date
Ministry of Energy, Mines and Petroleum Resources

DRAFTED BY:
Jennifer Anthony, EMPR
778-698-1578
Lisa Paquin, ENV
778-698-4419

APPROVED BY:

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Withheld pursuant to/removed as

s.13; s.16

United States Senate

WASHINGTON, DC 20510

October 22, 2019

The Honorable Mike Pompeo
Secretary
U.S. Department of State
2201 C Street NW
Washington, DC 20520

Dear Secretary Pompeo,

We write to again highlight efforts and continued plans of U.S. Congress to protect American interests in the face of potential downstream environmental and economic impacts resulting from large-scale mines in British Columbia, Canada (B.C.). We appreciate the Administration's engagement with Canada to date on this matter, but remain concerned about the lack of oversight of Canadian mining projects near multiple transboundary rivers that originate in B.C. and flow into four U.S. states, Alaska, Washington, Idaho, and Montana.

To address these concerns, we have taken steps in partnership with communities, tribes, and our State government to improve water quality monitoring and push for constructive engagement with Canada. In sharing an update on our efforts, we hope to encourage you, in your role as Secretary, to allocate similar attention, engagement, and resources to collaborative management of our shared transboundary watersheds with Minister Freeland.

In February 2019, we secured additional funding in fiscal year 2019 for transboundary water quality monitoring and the continued work of the interagency working group convened in 2017 by the EPA, State Department, and USGS to address concerns related to B.C. mining activity in shared watersheds.

In June 2019, we led a letter with our Senate colleagues from Idaho, Montana, and Washington to B.C. Premier John Horgan urging attention to and action on key issues related to transboundary mining practices, including encouraging standards of oversight and accountability for B.C. development projects similar to what is required on the U.S. side of the border.

In August 2019, we hosted a roundtable discussion on transboundary issues, bringing together federal, state, tribal, and local leaders as well as visiting Commissioners from the International Joint Commission (IJC), the bilateral panel under the Boundary Waters Treaty between the United States and Canada. The roundtable discussion focused on educating the IJC Commissioners about Alaska's transboundary watersheds, Alaska's water quality monitoring, concerns Alaskans have voiced about upstream mining activity in British Columbia, and actions made by Alaskans to engage with Canadian counterparts to raise such concerns.

It is clear that this Administration takes the protection of American resources very seriously. We therefore urge the Administration, through your Department, to again deliver a strong message in defense of American interests at the U.S.-Canada bilateral meetings in Ottawa this week. We specifically request that the Department's representatives impress upon their Canadian counterparts the critical need for binding protections, joint water quality monitoring, and financial assurances to protect Americans downstream of large-scale Canadian mines, as outlined in numerous letters we have sent to the Department of State.

Additionally, we would like to request that the Director and Deputy Director from the Office of Canadian Affairs provide us with an in-person update after the upcoming semiannual meetings in Ottawa conclude. We appreciate your continued attention to this important matter.

Sincerely,

Lisa Murkowski
United States Senator

Dan Sullivan
United States Senator

AGENDA: Transboundary Meeting with the International Joint Commission

Monday, December 2, 2019; 12:30 PM – 4:00 PM (PST); 3:30 PM – 7:00 PM (EST)
Boardroom 4003 - 525 Capital Park
Victoria, B.C.

Attendees:

British Columbia (BC):

Ministry of Energy, Mines and Petroleum Resources:
- Peter Robb, ADM, Mines, Competitiveness and Authorizations
- Kathy Eichenberger, Executive Director, Columbia River Treaty Review Branch
- Jennifer Anthony, Director, Strategic Initiatives

Ministry of Environment and Climate Change Strategy:
- Jennifer McGuire, ADM, Environmental Sustainability and Strategic Policy
- Laurel Nash, ADM, Environmental Protection Division

Intergovernmental Relations Secretariat:
- Craig Windrim, Manager, U.S. Relations (observer)

Global Affairs Canada (GAC):
- Sylvain Fabi, Executive Director, U.S. Transboundary Affairs
- Anna Sharkova, Policy Analyst, U.S. Transboundary Affairs

International Joint Commission (IJC):
- Pierre Béland (Canada)
- Jane Corwin (U.S.)
- Merell-Ann Phare (Canada)
- Robert Sisson (U.S.)

#	*Time*	*Item*	*Lead*
1	12:30-12:45pm	Welcome and Introductions	All
2	12:45 -2:00pm	Overview of the Framework for the BC Transboundary Working Relationships with AK: • Existing frameworks and agreements; • Existing working groups and structures; • BC Projects; and • Key accomplishments to date.	BC
3	2:00-2:30pm	• Other transboundary regions: WA, MT	BC

		• BC's ongoing focus on "Mining Done Right"	
4	2:30 -3:00pm	Break	
5	3:00 -3:30pm	Background and Debrief from Alaska visit	IJC
6	3:00 -3:30pm	Summary	BC

Attachments:

1. Agenda
2. Mission and Role of the IJC
3. Boundary Waters Treaty of 1909
4. IJC Commissioner's Biographies
5. B.C.-Alaska Memorandum of Understanding and Cooperation (2015)
6. B.C.-Alaska Statement of Cooperation on the Protection of Transboundary Waters
7. Reciprocal Procedures (attachment to the Statement of Cooperation on the Protection of Transboundary Waters)
8. June 2019 BWG Summary Notes
9. B.C. Project List
10. Transboundary Waters Newsletter 2019
11. Joint Water Quality Monitoring Program for Transboundary Waters
12. Tulsequah Briefing Note
13. Alaskan Commissioner's Op-ed in the Juneau Empire
14. B.C.-Washington Environmental Cooperation Agreement (1992)
15. Memorandum of Understanding between the Washington State Department of Ecology and the British Columbia Environmental Assessment Office (2003)
16. Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy between the Province of British Columbia and the State of Montana (2010)
17. Environmental Cooperation Arrangement between the Province of British Columbia and the State of Montana (2003)
18. Letter of Commitment from ENV Deputy Minister Zacharias to Director McGrath of the Montana Department of Environmental Quality (October 10, 2019)
19. Letter of Commitment from Director McGrath of the Montana Department of Environmental Quality to ENV Deputy Minister Zacharias (October 16, 2019)
20. U.S. Senator's Letter to Premier John Horgan
21. Response to the U.S. Senators and the Technical Appendix
22. Media Release of the IJC Commissioner's August Alaska Visit
23. Senators Murkowski and Sullivan's Letter to Secretary Pompeo
24. Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report
25. Teck Summary Company Profile (Internal ENV backgrounder) (March 2019)

ANNOTATED AGENDA:		
#	***Item***	***Lead***
1	Welcome and Introductions	All
	The purpose of this meeting with the IJC is to build good will with the IJC Commissioners, ground truth the many examples of continued emphasis on "Mining Done Right" in B.C. and explain the success of existing cooperative relationships, agreements and structures that B.C. has in place to collectively manage transboundary issues at the subnational level. The IJC Commissioners have indicated they are interested in hearing how B.C. is working with our transboundary partners in AK, MT and WA to improve harmonization, transparency and communications.	
2	Overview of the Framework for the BC Transboundary Working Relationships with AK: • Existing frameworks and agreements; • Existing working groups and structures; • BC Projects; and • Key accomplishments to date.	Peter Robb
	BACKGROUND: *Existing frameworks and agreements* • The Memorandum of Understanding and Cooperation between the State of Alaska and the Province of B.C. (MOU) was signed in November 2015. • A Statement of Cooperation on the Protection on Transboundary Waters (SoC) was signed by B.C. and Alaska in October 2016, to formalize and build upon the cooperative relationship between the two jurisdictions. *Existing working groups and structures* • Prior to the establishment of the SoC and MOU with Alaska, many transboundary issues were elevated to the political/federal level. Issues and concerns can now be raised through the Bilateral Working Group (BWG) for further discussion and collaborative resolution. Staff members of the working group meet on a monthly basis to resolve any outstanding items of concern, provide project updates, and action commitments stemming from the annual BWG meetings. • The SoC establishes the BWG, the Technical Working Group on Monitoring (TWG-m), and requires the development of the Reciprocal Procedures to guide cooperation on environmental assessments and permitting between the two jurisdictions.	

- The Reciprocal Procedures as set out in the SoC, describe how B.C. and Alaska will collaboratively work together. A joint Reciprocal Procedure was developed and approved by the BWG that is meant to achieve the following outcomes:
  - More clearly define existing procedures used by provincial ministries to ensure active engagement by state agencies in the review and permitting of lode mines subject to British Columbia's Environmental Assessment Act (BCEAA), Mines Act (BCMA), and Environmental Management Act (BCEMA);
  - Define new procedures that will be used by state agencies to notify provincial ministries when a state permit may be required for a mine proposed in British Columbia or a mine proposed in Alaska may result in environmental impacts in British Columbia; and
  - Define new procedures for how state agencies and provincial ministries will notify each other about certain federal environmental review processes.
  - Section 4 of the Reciprocal Procedures allows for the BWG to identify projects or processes, direct appropriate actions, or develop procedures, as necessary, related to Province of British Columbia participation in Alaska's permitting processes.
- As part of that process, B.C. and Alaska have developed a master project list for all mining activities occurring in the transboundary area.
- The Communications Plan was developed for the purpose of enhancing transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the Transboundary Region, including the Alsek, Stikine, Taku and Unuk watersheds and marine waters. The Communication Plan sets out how the parties to the SoC will enhance communication with all interested parties in the region.
- The Transboundary Waters Newsletter was developed as a component of the Communication Plan. Since 2017, an annual newsletter has been published to provide the public and stakeholders with an overview of major activities within the transboundary region. The most recent issue includes the following topics: B.C.'s Environmental Assessment Update, Building Relationships and Transboundary River Monitoring (B.C. update), Water Sampling in the B.C.-AK Transboundary Watersheds (Alaska update), Transboundary Mine Updates (B.C. only), and highlights Mining-Related Events.
- The Joint Water Quality Monitoring Program for Transboundary Waters is a collaborative initiative operating under the guidance of the Technical Working Group on Monitoring. The program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, Tribes, First Nations and industry. The focus of the monitoring program is to characterize the overall health of the watersheds and monitor for impacts for mining operations and other industrial development in these transboundary waters.

- Some examples of the program's data collection efforts include:
    - cataloguing recent and historic water quality, water quantity and bioassessment data;
    - conducting a Traditional Ecological Knowledge survey;
    - implementing the Alaska Monitoring and Assessment Program; and
    - conducting supplemental water quality monitoring projects in transboundary watersheds.
    - BC will also expand its Biomonitoring Network (CABIN) protocols to measure change in biological communities to assess freshwater ecosystem health.
- An Interim Monitoring Report summarizing existing data, data gaps, and data collected will be provided to the BWG in January 2020. A final report will be prepared in 2020 summarizing all monitoring data collected.
- The most recent BWG meeting was held in June 2019, and was the first BWG meeting for the newly appointed Alaskan Commissioners. The purpose of the meeting was to introduce the Alaskan Commissioners to B.C. representatives and Executive, explain the BC-AK frameworks (MOU, SoC, BWG) and other key components of the collaborative relationship between the Province and the State. The next meeting of the BWG is scheduled for January 22, 2020.

BC Projects

- There are several major mining projects in Northwest BC that are of interest to AK, including Tulsequah, Johnny Mountain, Red Chris, KSM, Galore and Red Mountain:
    - **Tulsequah**: The Tulsequah Chief historic underground mine (Mine) is located approximately 120 kilometres south of Atlin on the Tulsequah River, in the traditional territory of the Taku River Tlingit First Nation (TRTFN). s.16

s.16

s.16

- **Red Chris**: The Red Chris Mine is an open-pit cooper-gold mine located within the traditional territory of the Tahltan Nation. Tahltan members currently make up close to 35 percent of the Mine's workforce. The mine is 18km south of the Village of Iskut and is also near Dease Lake. In August 2019, the transaction for the sale of Red Chris Mine to Newcrest Mining Ltd was finalized. Newcrest acquired 70% ownership, and Imperial Metals will retain 30% interest in the Mine. A Five-Year Plan and Reclamation Program was received from Red Chris Development Corporation (RCDC) in June 2018, and Tahltan First Nation and the Province provided comments regarding the plan in late 2018 and early 2019. The Mine Development Review Committee (MDRC) was paused during the sale of the Mine. Following the completion of the transaction, the Province, Tahltan and Newcrest are currently planning a meeting to discuss the comments brought forth during the 5 Year Mine Plan Review.
- **KSM**: KSM Mining ULC, subsidiary of Seabridge Gold Inc., is the holder of the KSM property. The project is a proposed copper and gold open pit mining project located 65km northwest of Stewart, B.C. The project is expected to have an average ore extraction rate of approximately 130 000 tonnes per day over an anticipated 52-year mine life. The project received federal and provincial environmental approvals in 2014 and recognized KSM will not result in significant adverse effects. With an estimated 5-year construction and a 52-year mine life, the company expects to employ 1522 people during construction and provide 1407 direct jobs during mine operations. KSM Mining ULC has submitted three applications related to the Iron Cap Exploration Adit (ICEA) Project, to facilitate further exploration into the Iron Cap Deposit. This includes a *Mines Act* Notice of Work (NoW) Application, an application to amend *Environmental Management Act* (*EMA)* Effluent Permit 106814, and a Water Licence application under the *Water Sustainability Act.* The proposed ICEA Project is wholly within the larger project area of the KSM Mine Project, adjacent to the Iron Cap deposit, within the Mitchell Valley. The proposed ICEA project is currently under review, led by the Major Mines Office.
- **Galore**: Galore Creek is an open pit cooper/gold/silver project in the Thompson-Nicola Region of northwest BC, with an anticipated production

capacity of up to 60,000 tonnes per day. The expected mine life is 25 years. The Galore Creek Project received provincial and federal environmental assessment (EA) approvals and all permits required to commence construction in 2007. Galore Creek Mining Corporation (GCMC) started construction activities within the M-230 permit area (Galore Valley) in 2007. A limited amount of mine site infrastructure development including roadwork, tunnel construction staging area, and expansion of the existing camp was initiated before the Project was halted in late 2007. The Project remains on care and maintenance.

- **Red Mountain**: The Red Mountain project is 15 km northeast of Stewart, B.C. and anticipates producing approximately 1000 tonnes of mineral ore per day or 365,000 tonnes per year, over an operational mine life of six years. The project received their EAC on October 5, 2018 and their approval from CEAA on January 14, 2019. The Major Mines Office waiting on IDM/Ascot to confirm permitting timelines. To date, we do not have any new information regarding a timeframe for when this information will be provided.

Key accomplishments to date

- Through the MOU and SoC, B.C. and Alaska have collaborated to develop a number of initiatives including:
  - Establishing the BWG and the TWG-m.
  - Developing reciprocal procedures that ensure Alaska has an opportunity to provide input into B.C.'s regulatory processes and decisions, as well as providing the U.S. EPA and local interest groups in the U.S. a channel through Alaska to engage with B.C.
  - Alaska has provided input on several of B.C.'s regulatory activities (e.g. *Mines Act* amendments, B.C.'s reclamation policy, and remediation plan for Tulsequah).
  - Development of a master project list of all mining activities (from early exploration to major projects) occurring in the transboundary area.
  - Development of a Communications Plan to enhance transparent communication related to significant natural resource projects that could impact watersheds and marine waters in the transboundary region. This includes a transboundary website that is accessible to the public.
  - Establishing the Joint Water Quality Monitoring Program for Transboundary Waters as a collaborative initiative operating under the guidance of the TWG-m. This program is collecting and sharing water quality data from before, during and after mining and other industrial activity in key transboundary rivers. It includes participation from various agencies, U.S. Tribes, Indigenous Nations and industry.

s.16

- B.C.'s goal is to continue to build upon the momentum of these efforts to ensure continued protection and oversight within the transboundary waters region.

s.16

s.16 Alaska has been invited and accepted to join technical working groups regarding the clean-up of the mine.

BC MESSAGES:

- The existing structures in place have proven highly effective and successful in focusing the dialogue between Alaska and B.C. on key issues such as water quality in the transboundary region, and remediation efforts at the Tulsequah Chief Mine;
- The members who participate at these tables and forums, who have a vested interest in seeing issues resolved are supportive of the mechanisms in place and see no need for federal intervention, and are supportive of existing frameworks; this same message is being expressed by B.C.
- The Alaskan Commissioners Fiege, Brune and Vincent-Lang expressed this support and opinion clearly in a June 2019 Op-Ed in the Juneau Empire regarding their commitment to maintaining both high water quality standards and responsible mineral development in the transboundary waters between Southeast Alaska and B.C. The article referenced the collaborative relationship the State and Province have fostered through the establishment of the MOU and SoC. s.16

s.16

- NGO's who have been invited to engage at a deeper level on Tulsequah have stated that a federally led IJC process would be a "complicating factor" on Tulsequah where significant work is collectively underway;
- s.16

s.16 These opinions are being freely expressed by those who are engaged in the transboundary discussions with B.C.; and present a more fulsome view of the work underway than is currently being captured by the press and Senators.

3	• Other transboundary regions: WA, MT • BC's ongoing focus on "Mining Done Right"	Jennifer McGuire Peter Robb
	BACKGROUND:	

Other transboundary regions: Washington

- BC and Washington State have enjoyed a collaborative working relationship since the creation of the Environmental Cooperation Agreement in 1992. The Environmental Cooperation Agreement and the Environmental Cooperation Council have a successful history of promoting and coordinating mutual efforts to ensure the protection, preservation and enhancement of our shared environment for the benefit of current and future generations.
- The Agreement has proven to be very effective model and was recently renewed in 2018. Over the years cooperative efforts have focused on:
  - water quality;
  - water resource management;
  - regional air quality;
  - solid hazardous waste;
  - wetlands protection; and
  - coastal and ocean management.
- In June 2001, the Washington Department of Ecology and the B.C. Ministry of Environment and Climate Change Strategy entered into a Memorandum of Understanding regarding Environmental Assessments. Under this MoU the state and province make every effort to share information, consult with one another, and coordinate their work on environmental issues that have the potential to affect resources and residents in the border region. In keeping with these agreements, provincial and state regional offices are included in the distribution of environmental assessment notifications for major projects located within 100km or less from the border between the two jurisdictions.

<u>Nooksack River Watershed Project</u>

- Shellfish beds located on the mouth of the Nooksack River have experienced prolonged harvesting closures for over two decades due to fecal bacteria contaminated waters. The Nooksack River watershed has seen an overall decline in water quality and ecosystem health due to urban and agricultural development in the watershed.
- Bertrand Creek and the Fishtrap Creek are two large sub-basins of the lower Nooksack River watershed that straddle the international boundary. Both Bertrand Creek and Fishtrap Creek watersheds are located about half in BC, Canada (Aldergrove and Abbotsford area) and half in Washington (WA), USA.
- In December 2016, representatives from Canada and the US, along with local stakeholders, formed a Water Quality Task Group to understand the source of water quality concerns and establish a direction to improve watershed health.

- As an outcome of the WQTG, the Nooksack River Transboundary Technical Collaboration Group (TCG) was established in August of 2018 to implement a three-year work plan to:
  - Reduce fecal coliform bacteria contamination at transboundary stream locations of the Nooksack Watershed.
  - Maintain communication at the operational level among TCG members.
  - Facilitate communication at the management level among TCG members.
  - Design and implement BC/WA joint actions described in the TCG's three-year transboundary work plan (Work Plan).
  - Exchange updates related to jurisdiction-specific actions in the work plan.
- Through the TCG this allows BC and WA to harmonize our monitoring and respond and follow-up, in a timely manner, on any issues in the watershed. This relationship has resulted in improved water quality crossing the border.
- In 2019, due to water quality improvement, the spring harvest season was re-opened in the Conditionally Approved portion of the growing area. While harvest in the Conditionally Approved area is now allowed January through September, the area remains closed to harvest from October-December each year due to fall season elevated concentrations of fecal coliform bacteria in the marine water.
- The project has entered its second year of implementation and will end August of 2021.

<u>Imperial Metals</u>

- The Imperial Metals application for a Mines Act permit in the Silverdaisy area is still under review. The Statutory Decision Maker is continuing to conduct a thorough and comprehensive review of the application based on input from numerous parties and Indigenous nations. A decision is expected to be made early in the new year.

Other transboundary regions: Montana

- The foundation of BC and Montana's collaboration on regional ecosystems and shared protection of transboundary waters is captured in the 2003 Environmental Cooperation Arrangement and underpinned by the Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy, which also provides for reciprocal opportunities for Montana to participate in BC's environmental assessment process.
- In recent years BC and Montana have focused on assessing and managing transboundary impacts from mines in the Elk Valley through the Lake Koocanusa Research and Monitoring Working Group.

- The working group is a cross-border forum through which site-specific criteria and water quality guidelines for the Koocanusa Reservoir are discussed and recommended. It has established common resources for open sharing of data and information by our two jurisdictions. It includes representatives from US federal and state agencies, First Nations and US Tribes, stakeholders, industry, non-governmental organizations and experts.
- The working group is currently focused on finalizing draft water quality objectives/criteria for selenium in Koocanusa Reservoir, targeting completion by 2020. Additional objectives and criteria for other substances could also be developed in the future.
- In the fall of 2019 the Deputy Minister of Environment and Climate Change Strategy and Director of Montana's Department of Environmental Quality exchanged letters of commitment which confirm our shared goal of aligning selenium water quality objectives and criteria for the Koocanusa Reservoir in 2020; and established a new commitment to jointly develop annual work plans moving forward. The joint work plans will identify shared priorities and the steps needed to achieve those goals on an annual basis, starting with 2020's focus on adopting aligned selenium water quality objectives and criteria.
    - The 2020 work plan is currently being finalized.
    - B.C. intends to provide the Ktunaxa Nation Council opportunities to review and provide input before the work plan is adopted.
- Participation and support from First Nations is very important to BC. Working closely with Montana we have recently expanded the role of representatives from First Nations and US Tribes on a key technical sub-committee of the working group. BC is also in discussions with the Ktunaxa Nation Council to explore pathways for collaborative development of BC's water quality objective that will be adopted in the BC portion of Koocanusa Reservoir.
- In November, 2019 BC and Montana collaborated to host the annual face to face meeting of the Lake Koocanusa Monitoring and Research Working Group in Whitefish, Montana. Alongside the working group meetings, two public panels were held in Libby and Eureka to provide the public opportunities to ask questions from ministry, industry and non-governmental representatives about the working group, the activities underway in the Elk Valley, and the work underway to monitor and assess potential impacts on US citizens and resources.

BC's ongoing focus on "Mining Done Right"

- On June 13, 2019, a week before the June 18 BWG meeting, 8 Senators from B.C.'s neighboring states wrote to Premier John Horgan (PJH) regarding the work

in congress the Senators have undertaken to "dedicate attention and resources to concerns regarding U.S.-B.C. transboundary watersheds".

- BC staff from EMPR, ENV, and IGRS worked collaboratively to provide a comprehensive response to the Senator's letter. The response included a letter from PJH, as well as a technical appendix which went into further detail on the topics mentioned in the letter.
- Topics included in the letter exemplify BC's commitments and ongoing focus on "Mining Done Right".
    - The Province has given significant attention, engagement and resources to implement legislative and regulatory changes to strengthen industry safety and oversight. These efforts were most recently emphasized in B.C.'s Budget 2019, in which $20 million of new funding was allocated towards mining oversight. Prior to Budget 2019, the requirements for tailings storage facilities were significantly strengthened, including the requirement for an Independent Tailings Review Board; as well as mandating that all new mines follow modernized and increased safety requirements. All mines in B.C. must also adhere to stringent requirements for tailings storage facilities.
    - The currently proposed *Mines Act* amendments will support and formalize recent organizational changes and enhance compliance and enforcement provisions.
    - Budget 2019 enabled EMPR to separate its regulatory authorities with the creation of a new Mines Health, Safety and Enforcement Division, distinct from the Mines Competitiveness and Authorizations Division. Budget 2019 also announced a new Mine Audits and Effectiveness Monitoring Unit (Audit Unit) as an oversight unit separate and independent from EMPR's other regulatory functions.
    - The proposed *Mines Act* amendments will reflect the new two-division structure, separate decision making for permits away from health, safety and enforcement, and provide the Audit Unit with the authority it needs to fulfil its oversight mandate.
    - The proposed *Mines Act* amendments will also:
        - Strengthen compliance and enforcement provisions – for example by strengthening the ministry's the ability investigate incidents on mine sites and take action to respond to dangers to health and safety or the environment, and
        - Strengthen government's ability to ensure that reclamation and other environmental obligations are met including during insolvency proceedings.

- B.C. has strengthened the *Environmental Management Act*, which enables us to recover costs of environmental clean-up directly from the spiller or polluter; clarifies requirements for restoration; and increases penalties for incomplete restoration. Additionally, a new *Environmental Assessment Act* is being implemented in the fall of 2019. The new *Act* includes a number of changes to enhance public confidence, advance reconciliation with First Nations and protect the environment while offering clear pathways to sustainable project approvals. Among the changes are new tools to enhance compliance and enforcement, including administrative monetary penalties of up to $750,000. In addition, ENV EMPR, and the Environmental Assessment Office have a Mining Compliance and Enforcement Strategic Plan that outlines B.C.'s vision for achieving enhanced protection of the environment, human health and public safety through an integrated risk-based approach to mining oversight. The Strategic Plan also formalizes the integration and coordination of the three agencies' mining compliance and enforcement policies and in 2018 they published a joint "Risk Management Framework for Mining in BC", formalizing how the agencies practices risk management for mining both independently and collectively.

- As part of our commitment to true and lasting reconciliation with Indigenous Peoples in British Columbia, B.C. has recently tabled draft legislation, *Declaration on Rights of Indigenous People Act,* that supports the full adoption and implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Calls to Action. B.C is the first provincial jurisdiction to pass legislation (unanimously on Nov 26/19) to implement the UN Declaration, which will form the foundation for the Province's work towards reconciliation in B.C. Strengthening relationships with Indigenous Nations and leveraging Indigenous knowledge and perspectives improves social and economic outcomes for Indigenous Peoples and all British Columbians.
- Beyond our internal efforts to increase mining oversight, strengthen regulatory tools and decision-making processes, and deepen engagement with Indigenous Peoples, B.C. is committed to ongoing collaboration, information sharing, engagement and joint-monitoring with our partners in the United States. This collaboration takes place through a number of shared forums and joint working groups that have been established through the bilateral agreements and Memorandum of Cooperation B.C. has signed with Alaska, Washington, and Montana.
- Beyond these collaborative government efforts, the mining industry within Canada has taken key steps towards greater compliance and regulation through initiatives such as Towards Sustainable Mining (TSM) which is a performance

system that mining companies use to evaluate and manage their environmental and social responsibilities. The TSM was established by the Mining Association of Canada (MAC) in 2004 and helps ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. Since 2004, various mining jurisdictions around the world have adopted TSM for their members, and TSM participation is mandatory for MAC members.

Trail Operations Facility (Lead-Zinc Smelter) in Trail, B.C.

- Teck Metals Ltd. operates a lead-zinc smelter in the community of Trail, B.C. referred to as the Trail Operations Facility.
- The smelter in Trail that has been in operation for over 100 years and waste discharges from it have resulted in metal contamination on properties within the city as well as in the Lower Columbia River Valley from Castlegar to the US Border (the "Environmental Management Area").
    - Approximately 12 million tonnes of slag discharged into the Lower Columbia River between 1929 and 1995
    - The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy
    - Slag material in pools is mobile and continues to be transported downstream
    - Of the 12 million tonnes of discharged slag, 10% is estimated to remain in Canada
- Teck Metals Ltd.'s discharge of slag ceased in 1995. The company has in place waste water treatment plants and retention reservoirs to capture and treat groundwater and discharged water before it is released back into the Columbia River.
- The Confederated Tribes of the Colville Reservation in the United States have taken legal action against Teck in U.S. courts for many years to hold the company liable for the slag pollution. In 2019 the US Supreme Court ordered Teck to reimburse the CTCR nearly $8.6M U.S. to cover the Tribes costs of investigating the river's pollution and for attorney fees/costs in taking the matter to court.
- 2007 and 2010 studies commissioned by the Ministry of Environment and Climate Change Strategy (ENV), BC Hydro, the Columbia River Integrated Environmental Monitoring Program (CRIEMP) and the CTCR identified a number of key facts regarding flow conditions and the presence of slag in the Columbia River including:
    - Total discharge of slag from Teck's smelter between 1929 and 1995 is estimated to be approximately 12 million tonnes.

- There is an estimated 10% of the total slag discharged remaining in Canada.
- The majority of slag in Canada was deposited in low velocity areas in Fort Sheppard Flats and the Waneta Eddy.

- The focus of recent investigations in Canada has been in an area slightly downstream of Waneta Eddy, in an important white sturgeon spawning area.
- During 2018 field work, BC Hydro did not observe any slag in the spawning area.
- ENV is also involved in reviewing remediation activities associated with surface water and groundwater discharges to the Columbia River from the Teck, Trail Operations site. This includes:
  - A Groundwater Pump and Treatment system to prevent the discharge of a large ammonium sulphate and metal plume into the river and below the community of East Trail. The first phase of the Groundwater Treatment Plant was completed in 2016 (extracting 3,500 m3/day). A second phase is currently underway.
  - Investigations and interim mitigation measures to reduce metals discharges into Stoney Creek and downstream to the Columbia River.
  - Assessment of slag deposits in the Columbia River Area Adjacent to Downtown Trail for aquatic ecological risks and to determine what remedial actions may be required.

BC MESSAGES:

If asked about BC-MT MOU

- Our government is committed to improving water quality in Lake Koocanusa by working with our partners across borders to establish science-based water quality objectives for selenium in 2020.
- Working collaboratively with Montana remains a priority for the Province and we continue to support the work of the Lake Koocanusa Monitoring and Research Working Group.
- B.C. is committed to working closely with government partners, Indigenous nations, industry and NGOs to make sure we are protecting ecosystem health in Lake Koocanusa for the future.
- B.C. and Montana have been working together to formalize our commitment to protect ecosystem health in Lake Koocanusa and align water quality objectives for selenium in 2020.

s.16

	s.16 • In lieu of an MOU, BC and Montana are committed to developing an annual work plan and working together through the Lake Koocanusa Monitoring and Research Working Group to develop water quality objectives for selenium.	
4	Break	All
5	Background and Debrief from Alaska visit	IJC Commissioners
	BACKGROUND: *Background and Debrief from Alaska visit* • At the invitation of Senator Murkowski, three US IJC Commissioners, and the Canadian Chair, Pierre Béland, visited Alaska from August 3-5 2019. The visit to Alaska was referred to as a "fact finding mission" for the IJC Commissioners. • A transboundary roundtable discussion occurred on the last day of the Commissioners visit, and focused on Southeast Alaska's transboundary issues. Senator Murkowski and Senator Sullivan were in attendance, along with Alaskan Commissioners Brune and Fiege. Local officials, and tribal/industry/fishing stakeholders were also in attendance. s.16 • On October 22, 2019, Senators Murkowski and Sullivan wrote to Secretary of State Pompeo regarding their concern about the "lack of oversight of Canadian mining projects near multiple transboundary rivers that originate in B.C. and flow into four U.S. states, Alaska, Washington, Idaho, and Montana". The Senators outline how they have addressed the concerns to date, and state that they hope to encourage Secretary Pompeo, "to allocate similar attention, engagement, and resources to collaborative management of our shared transboundary watersheds with Minister Freeland." • The letter references the IJC's visit to Alaska and the focus of the August 5 transboundary roundtable discussion.	

	BC MESSAGES: • B.C. continues to focus efforts where it is most important, which is with our transboundary neighbors to ensure that mining concerns and issues are identified and addressed as they arise. • Those who are closest to the dialogue for the transboundary region recognize that cooperative and collaborative efforts continue to move the dial on some challenging issues, both historic and more modern within the transboundary regions. s.16
6	Summary — Peter Robb
	BC MESSAGES: • Historically, prior to States and Provinces existing or establishing formal relationships, the Boundary Waters Treaty was a key component of successfully protecting transboundary waters. s.13 • B.C. believes we have a positive and solid working relationship with our state partners, and we are not a candidate for a reference to an IJC led process as B.C. continues to demonstrate innovation, collaboration and a willingness to tackle transboundary waters issues as they arise. Over the last 5 years B.C. has made significant strides in modernizing mining oversight not just within transboundary regions but across the sector as a whole. • B.C. has taken and will continue to take pride in the strong relationships we have formed with our transboundary neighbors.

ITMOs and Article 6 Summary

Background

The Paris Agreement

In 2015, Parties to the UN Framework Convention on Climate Change (Parties) came together at COP21 in Paris to negotiate a new global agreement for climate action. The Paris Agreement sets out a global action plan to hold the increase in global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit the increase to 1.5°C.

The Paris Agreement requires each Party to put forward their best efforts through Nationally Determined Contributions (NDCs) to reduce global greenhouse gas (GHG) emissions. Canada, as a Party, has submitted an NDC commitment to reduce GHG emissions by 30% below 2005 levels by 2030. Subnational governments such as Canadian provinces and territories are not Parties to the UNFCCC or, therefore, the Paris Agreement.

The Paris Agreement is a framework, analogous to a piece of enabling legislation. The Paris Agreement Rulebook, analogous to a Regulation promulgated under such a piece of legislation, provides the detailed substance that gives effect to the intent of the Paris Agreement. Negotiation of the Rulebook was largely completed at COP24 in December 2018, with the notable exception of Article 6, where debate and negotiation continue on the intent, meaning, scope and practical application of the Article. It is currently anticipated that negotiation of the Rulebook, including with respect to Article 6, will conclude at COP25 in Chile in late 2019.

The Pan-Canadian Framework on Clean Growth and Climate Change

The Pan-Canadian Framework (PCF) was publicly released in 2016 at a First Ministers Meeting in Ottawa. The PCF develops a plan to enable federal, provincial, and territorial governments to collaboratively reach Canada's NDC while providing flexibility for provinces and territories in the actions they take to help meet Canada's climate goal.

To meet Canada's NDC, First Ministers have agreed under the PCF that "the priority is to first focus on reduction in emissions within Canada, but part of Canada's approach to climate change could also involve acquiring allowances for emissions reductions in other parts of the world, as a complement to domestic emissions reduction efforts" and notes that "Quebec and California already participate in international emissions trading under their linked cap-and-trade system".

Article 6 of the Paris Agreement

Article 6.1

Article 6.1 of the Paris Agreement recognizes that "*some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition…..and to promote sustainable development and environmental integrity*".

The key elements of Article 6.1 are that cooperation in reducing GHG emissions under the Paris Agreement is to be between Parties, is voluntary, is in support of achieving more ambitious NDCs, and should result in credible emission reductions ("promote…environmental integrity").

Article 6 then goes on to provide two main approaches to enable this voluntary cooperation, in sections 6.2 ("ITMOs") and 6.4 (a "Mechanism"), as well as some parameters within which these approaches may be used.

Article 6.2 – " ITMOs"

Article 6.2 introduces the term internationally transferred mitigation outcomes, or ITMOs for the first time, and provides that "*Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with the guidance adopted by….Parties….".*

In essence then, what 6.2 does, is to name an approach Parties may take in cooperating to meet their NDCs (i.e. ITMOs), and to put the onus on Parties to establish the institutional infrastructure required to ensure that any transferred emission reductions are credible and are credibly accounted for, in a manner consistent with "guidance" to be negotiated and agreed upon by Parties, through the UNFCCC.

Article 6.3

Article 6.3 provides that the use of ITMOs to achieve NDCs shall be voluntary "*and authorized by participating Parties*".

Importantly, what this means is that BC, as a non-Party, may only utilize ITMOs when authorized by Canada. And, further, BC may only do so if Canada opts to become a "participating" Party. To date, approximately half the Parties to the Paris Agreement have indicated interest in becoming a participating Party for the purposes of Article 6. Canada has indicated interest, subject to finalization of the Paris Agreement Rulebook and the "guidance" to be provided through the UNFCCC. However, as noted above, the PCF prioritizes domestic action to meet Canada's NDC above international mitigation opportunities. Private sector entities, as non-parties, would face the same constraints as the Province in use of ITMOs.

Article 6.4 – the "Mechanism"

Article 6.4 provides that *"a mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established….under the authority and guidance of….Parties…..supervised by a body designated by Parties…..and shall aim to promote the mitigation of greenhouse gas emissions…incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party….to contribute to the reduction of emission levels in the host Party….that can also be used by another Party to fulfill its nationally determined contribution…and to deliver an overall mitigation in global emissions*."

Analysis

The main difference between the mechanism established in Article 6.4 and the ITMOs envisaged in Article 6.2 is the degree of structure and the rigidity of the rules around them.

Article 6.2 is often characterized within this frame as a 'flexible, open, bottom up, buyer beware' approach, where guidance, but not hard rules are provided by the UNFCCC, and where Parties are responsible themselves for developing the rules and institutional infrastructure required to ensure that transfers are credible, and are credibly accounted for. As such, ITMOs are most often cited as an approach that may be used by, or between Parties that are members of existing emission trading systems (ETS), have robust domestic GHG accounting and tracking systems, and/or that have similar type NDCs (e.g. quantified emission reduction targets in tonnes of CO2e, rather than percentage reductions from a base year).

Article 6.4, on the other hand, establishes a mechanism with rules, supervised by a body designated by Parties, and is often characterized as an approach that may be utilized by, or between Parties with less robust domestic systems. Some Parties refer to the 6.4 Mechanism as the 'Sustainable Development Mechanism', analogous to the Clean Development Mechanism under the Kyoto Protocol, which enabled project-based transfers (e.g. investments in reforestation in return for a share of the resulting emissions benefit) between developed and developing countries, within a strong international institutional architecture.

Canada's Position on Article 6

Canada's submissions to the UNFCCC on development of the rulebook on Article 6 focus mainly on Article 6.2 (ITMOs). The focus of Canada's input has been the need for credible, robust systems for tracking and accounting that ensure integrity. In the absence of a credible system for ITMOs, a Party's NDC, and the accounting of its emissions reductions to achieve that NDC, could be cast into doubt.

Canada has put forward four key principles that should be used as guidance around the use of ITMOs, such that they:

1) Be voluntary and agreed by participating Parties;
2) Safeguard and promote environmental integrity of mitigation efforts;
3) Ensure transparency in reporting; and
4) Are consistent with accounting rules to prevent double counting of mitigation outcomes (the same reductions being claimed by both parties to an ITMO).

Additional Canadian ITMO priorities vis-à-vis the positions of other Parties during the negotiations have included:

- Maintaining flexibility and a bottom-up approach to carbon markets to allow each Party to tailor its own approach to meeting NDCs through ITMOs. This should include the participation of market actors to enable a combination of domestic mitigation actions and market-based measures.
    - While a number of Parties support a bottom-up approach, there has been a split between this camp and other Parties that do not wish to see fungible ITMOs, sub-national trading schemes, or cooperative approaches diverting focus from domestic efforts.
- Answering questions on the quantification, quality, reporting, and recognition of ITMOs, as well as on how ITMOs can be measured in the context of different kinds of NDCs.
    - Discussions among Parties have included controversies on whether eligibility to participate in Article 6 should be limited to some types of NDCs. Some parties put forward that eligibility should be open to all types of NDCs, while others suggest tying ITMO eligibility to NDCs that include a quantification of mitigation commitments by conversion to an absolute value in terms of tons of CO2 equivalent (tCO_2e).
- Clarifying the transparency requirements around ITMO units, tracking, and accounting.
    - There is some convergence among Parties that accounting and transparency requirements are key, though Parties also express unique and divergent suggestions as to specific provisions and requirements.
- Establishing guidance for environmental integrity by ensuring that ITMO reductions are properly quantified, unique, verifiable, estimated using conservative baselines, and that ITMOs do not result in increased global emissions.
    - Most Parties agree that environmental integrity means that one carbon unit represents one tone of CO_2e and is counted only once towards a commitment. There is some traction around the need for environmental integrity to include monitoring, reporting, verification, approval, permanent reductions, and that ITMOs do not result in increased emissions, but no concrete conceptualizations are shared among Parties.
- Establishing guidance or safeguards to address the risk of reversals of ITMOs (e.g. an area reforested under an ITMO is later deforested).
    - The Environmental Integrity Group of Parties (EIG, consisting of Liechtenstein, Mexico, Switzerland, Republic of Korea, and Monaco) shares concerns of reversal and suggest ensuring irreversibility (though no specific method to this end is mentioned) or ensuring compensation for possible reversals.
- The inclusion and consultation of subnational governments and other stakeholders, including the private sector and international organizations in ITMO activities.
    - Brazil has posited that subnational governments should not be included and are only indirectly relevant to the international regime as part of domestic policies

Canada's submissions also comment on Article 6.4 and the 'new mechanism' and again reaffirm Canada's concerns over double counting and ensuring environmental integrity.

Domestically, Canada has adopted an open and collaborative approach with provinces and territories on formulating its position on Article 6. An International Mitigation Project Team (IMPT) was established

under the Climate Change Committee (CCC) of the CCME and has met regularly to learn about ITMOs, and to review and inform Canada's position on Article 6 negotiations. Provincial and territorial staff (including from the BC Climate Action Secretariat) also participated in various multi-day meetings on Article 6 with the UNFCCC's chief Article 6 negotiator, Canada's Article 6 negotiators, and world renowned academic and legal experts on Article 6 and international emission trading regimes, to better understand the topic and help inform Canada's position.

Canada and other countries are also participating in a number of pilot projects to better understand the opportunities and challenges presented by Article 6, and the kind of institutional infrastructure that will be required, including a Canada-Chile pilot on waste (Appendix A).

Discussion

There are a number of key points to bear in mind when considering Article 6 within the BC context:

- Countries and sub-nationals can trade emissions across borders now (e.g. the European Emissions Trading System; and the WCI between Quebec and California), and can count these transfers towards their own emission reduction targets (e.g. BC's legislated targets). What is different under the proposed Article 6 approaches, is that such transfers would, if authorized by a Party, count towards that Party's NDC. As well, there would be some level of UNFCCC sanctioned guidance (ITMO), or hard rules (Mechanism), around their use.
- ITMOs are not yet real, since the Paris Agreement Rulebook on this has yet to be finalized. Specifically, there is no agreement, even among experts, on what constitutes an ITMO (e.g. does it include emissions transferred within an existing cap-and trade system, transfers of emissions that result from cross-border investments in reforestation, the transfer of technology, or the displacement of coal with imported LNG). Nor is there agreement on whether an ITMO should be restricted to emissions within an NDC, or within certain types of NDCs. And there is no agreement on what unit of measurement should be used – tonnes of CO_2e for example, or some other metric.
- Canada has not decided if it wishes to participate in the approaches contemplated under Article 6.
- If it does participate in Article 6 activities, there are a number of questions Canada will want to answer:
    - What proportion of Canada's NDC should be achieved through domestic action, and what share under Article 6, bearing in mind the goal of Article 6, consistent with Canada's position in the PCF, is that ITMOs would be secondary to domestic action and used to enable more ambitious reductions?
    - Should Canada participate in just Article 6.2, just 6.4, or both?
    - What kind of transfers, with which Parties, operating under what kind of NDCs, should Canada participate in?
    - Should Canada be a provider (generator) of ITMOs, a user (acquirer), or perhaps both?
    - What kind of international or bilateral institutional infrastructure would Canada require be put in place to ensure environmental integrity, accurate and credible accounting and

tracking, and the other detailed aspects of making sure that such transfers do not undermine the credibility of Canada's emission reduction claims?
        - Would Canada only permit transfers within an exiting emission trading system like WCI that already has robust governance and accounting systems?
        - Would Canada restrict transfers to the Article 6.4 mechanism?
        - Would Canada negotiate bilateral agreements with other Parties under 6.2 and, if so, what expectations would Canada have with respect to that Party's own domestic systems? How would adherence to these expectations be monitored and enforced?
    - Would Canada authorise provinces, territories, or private sector entities to participate?
- In the event that Canada participates in Article 6.2 (ITMOs) and authorizes provinces and territories to do the same, a subsequent set of questions becomes pertinent:
    - What kind of institutional infrastructure would be required *within* Canada to ensure the integrity and consistency of such transactions? Could the nascent 'Pan-Canadian offsets framework' play a role?
    - Would Canada establish bilateral agreements with trusted Parties that PTs could then operate under, or would such agreements be negotiated by each individual PT, for each individual transfer?
    - Would any such authorization be annual, by province, or would each transfer require a separate authorization?
    - How would transfers be logged and tracked and applied to Canada's NDC?
    - Would, or could all PTs agree on a single domestic tracking and accounting system for internationally transferred mitigation outcomes?
    - And, importantly, would PTs be able to count any transfers towards their own reduction targets, or would they only apply to Canada's NDC?

Conclusion/Next Steps

Given all of the above, and the current status of international negotiations on Article 6, it may be advisable for BC to refrain from speaking too ambitiously on the opportunities presented by Article 6 and ITMOs with respect to LNG developments for now, at least until the Rulebook is finalized and Canada has decided if and how it might participate. There is also further research and analysis BC could do to more fully understand and prepare for the possible use of ITMOs.

Certainly BC is free right now to join any existing credible trading schemes between jurisdictions that it chooses to (e.g. the WCI), and can count these transfers towards its own legislated GHG reduction targets. But such transfers do not constitute ITMOs, which are a specific instrument within Article 6 of the Paris Agreement, and use of the term ITMO to describe such options should be avoided. As well, any such transfers would not count towards Canada's NDC, which at present only considers emissions reductions physically located in Canada.

BC has been abundantly clear with Canada though multiple interactions at all levels of the bureaucracy, and politically, that we have an intense and abiding interest in Article 6. BC has enunciated a position

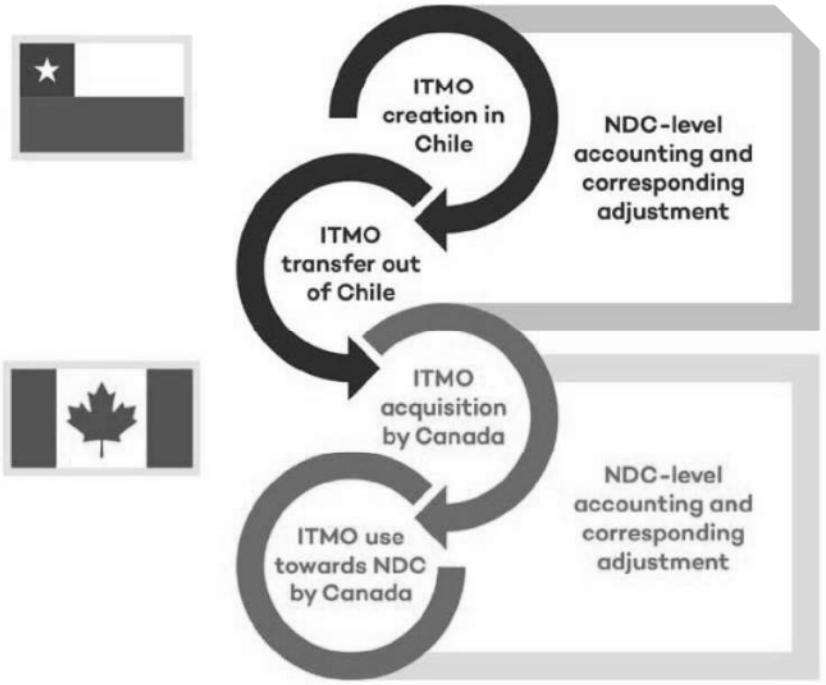
that Canada should participate in Article 6 approaches, and in particular Article 6.2 (ITMO), that Canada should negotiate from a position that ITMOs be broadly defined to include LNG displacement of coal, that Canada should authorize the use of ITMOs by provinces and territories, and that Canada should work with PTs to develop a robust infrastructure within which transfers will take place to ensure the credibility of the system.

BC will continue to advance this position in a robust manner up to and including at COP25 in Chile this December and, assuming successful completion of the Rulebook, will seek to engage Canada in early discussions on a path forward, with full PT participation, to build a robust, open, credible system for ITMOs that meets BC core interests.

David Coney
Climate Action Secretariat
May 2019

Appendix A

Canada-Chile Program to Reduce Emissions in the Waste Sector



Under the 1997 Canada-Chile Agreement on Environment Cooperation, Canada has offered financial ($7m CAD) and technical support to Chile to deploy technologies and to pilot innovative ITMO/Article 6 approaches supporting the reduction of methane emissions in the waste sector.

Canada and Chile have structured a 30-month (2017-2021) workplan that would pilot the implementation of ITMOs resulting from emission reduction projects. The objective of the workplan is for both countries to learn by going through the motions of structuring a hypothetical ITMO transfer. This Program is seen as a concrete example and opportunity for exploring options for the international exchange of mitigation outcomes within the framework of Article 6, though it will not lead to any actual transfer of ITMOs.

The workplan is structured around seven modules pursuing several questions:

(1) Responsibilities of the participants
- When should authorization to participate be given in the process of negotiating an ITMO transfer?
- What government oversight should be in place with the participation of authorized actors other than national governments (i.e. subnationals)?

(2) Structure and timing of bilateral agreements.

(3) Project-level monitoring, reporting, and verification (MRV), including 'sustainable development':
- What is the desired outcome of project-level MRV?
- What considerations are needed with respect to baseline definition, additionality principles, quantification protocols, materiality, crediting periods, etc?

- How can Chile demonstrate that projects fulfil the principle of sustainable development? Does the principle also apply to Canada in using ITMOs?

(4) NDC-level accounting:
- How should corresponding adjustments take place, including when, if both Parties should use the same approach, how it should be done, and if there are implications of other programs?
- How to reconcile between single year and multi-year NDC targets or tackle this issue?

(5) Infrastructure:
- What infrastructure is needed? Should a national registry infrastructure be used, and could it be used as a tracking mechanism, to demonstrate compliance, and to provide evidence of an ITMO transfer or retirement?
- How to connect infrastructure of two different Parties? What information might need to be shared between two Parties?

(6) Reporting:
- What should be reported to the UNFCCC when a corresponding adjustment takes place? What level of information exchange is needed between the two Parties?
- What level of coordination is needed between Parties?

(7) Article 6.4 provisions:
- Are there any common linkages?

The Program will also look at how Canada's investment to acquire ITMOs could serve to de-risk similar investments for private investors, and how emission reductions could be shared between Canada and Chile in the end.

Current take-aways are that while the Program has provided significant value in piloting Article 6 approaches, there is still much to consider beyond current draft Article 6 guidelines. There is promise that government ITMO acquisitions can be seen as a de-risking instrument for private investors, while questions remain as to how pilots can be scaled up into more widespread implementation and transfers.

Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report

Final

July 2019

Executive Summary

The Nooksack River watershed spans part of the border between British Columbia (BC) and the State of Washington (WA). In August 2018, the international, multi-agency Nooksack River Transboundary Technical Collaboration Group (TCG) was established to implement a three-year work plan to reduce fecal bacteria concentrations in the Nooksack River watershed. As a work plan deliverable, the TCG produced this annual report summarizing first year project activities.

During the past year, BC and WA sampled surface water throughout the Nooksack watershed, including sites located at the international border. Analysis of BC *E. coli* data shows that the 2018 wet season geometric means met the BC Primary Recreation guideline throughout the BC portion of the watershed. For four waterways spanning the international border, BC and WA data analysis noted higher fecal coliform concentrations in Cave and Bertrand Creeks as compared to Pepin and Fishtrap Creeks. Higher fecal coliform and *E. coli* concentrations typically take place during the wet season when soils are saturated or following significant rainfall events.

While the Bertrand Creek's annual fecal coliform geometric mean increased due to high bacteria counts captured in winter 2018-2019, data trends in WA's lower Fishtrap and Bertrand Creeks and in the Nooksack River mainstem show a decline in longer term fecal coliform concentrations since 2015.

The Nooksack River is the largest freshwater source to Portage Bay and to the Lummi Nation's Portage Bay shellfish growing area. From 2014-2016, portions of the Portage Bay growing area experienced a series of harvest restrictions due to poor water quality conditions. By 2016, Washington State Department of Health had downgraded over 800 acres from Approved to Conditionally Approved. The Conditionally Approved portion was closed to shellfish harvest April-June and October-December each year. In 2019, due to water quality improvement, the spring harvest season was re-opened in the Conditionally Approved portion of the growing area. While harvest in the Conditionally Approved area is now allowed January through September, the area remains closed to harvest from October-December each year due to fall season elevated concentrations of fecal coliform bacteria in the marine water.

To reduce fecal bacteria pollution in the Nooksack watershed, BC and WA used multiple sampling methods to help identify potential pollution sources. Agencies acted on complaints, offering technical assistance and conducting regulatory compliance activities as appropriate. Both jurisdictions engaged agricultural and rural residential communities through non-regulatory outreach. A TCG outreach subcommittee facilitated compliance promotion and shared event schedules and education materials.

A TCG subcommittee developed a recommendation for a short- and long-term *E. coli* concentration border benchmark. Monitoring in comparison to the short- and long-term benchmarks will be reported next year.

Based on successful first year project completion, the TCG recommends minor adaptations to the work plan for the coming year. Adjustments will help align tasks with funding developments and policy direction to improve efficiencies and communication.

Overall 2018-2019 water quality monitoring results are positive. Compliance, stewardship, and communications activities successfully reached key audiences and helped to address fecal bacteria pollution concerns. The TCG will continue to implement work plan tasks in 2019-2020.

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Introduction

The BC/WA Nooksack River Transboundary Water Quality Task Group (WQTG) was established in December 2016 to develop a common understanding of current water quality issues, data, and conditions related to fecal coliform bacteria in transboundary waters and tributaries to the Nooksack River and Portage Bay. Bertrand Creek and the Fishtrap Creek are two large sub-basins of the lower Nooksack River watershed that straddle the international boundary. The land areas of both Bertrand Creek and Fishtrap Creek watersheds are located about half in British Columbia (BC), Canada and half in Washington (WA), USA.

As an outcome of the WQTG, the Nooksack River Transboundary Technical Collaboration Group (TCG) was established in August of 2018 to implement a three-year work plan to:

- Reduce fecal coliform bacteria contamination at transboundary stream locations of the Nooksack Watershed.
- Maintain communication at the operational level among member groups.
- Facilitate communication at the management level among member groups.
- Design and implement BC/WA joint actions described in the TCG's three-year transboundary work plan (Work Plan).
- Exchange updates related to jurisdiction-specific actions in the work plan.

This "Nooksack River Transboundary Technical Collaboration Group 2018-2019 Annual Report" (the report) includes water quality monitoring results for the Nooksack Watershed and Portage Bay, a TCG work plan implementation update, and recommendations for the following year including work plan adaptions.

Water Quality Monitoring

This section of the report addresses the relevant bacterial water quality sampling and analysis for BC and WA for the period of April 2018 to March 2019. This reporting period encompasses a full year of data including the four seasonal quarters. Partner data collected prior to the August 2018 TCG formation (April to July 2018) is included.

The locations covered are:

- Canada-United States border sites
- Nooksack River key tributaries originating in BC
- Nooksack River mainstem
- Portage Bay

Background

Various organizations conduct water quality monitoring throughout the Nooksack River watershed. Washington (WA) partners have maintained a long-term ambient monitoring program in the lower Nooksack River watershed since 1998. In October 2014, Washington (WA) partners began to include seven Canada-United States (CA-US) border sites into its existing ambient water quality monitoring program (Figure 1). WA included one additional border location (FT9) in 2016 and another border site in December 2018 (DEP0) to its ambient monitoring program. As of March 2019, WA collects ambient samples at nine border sites.

In December 2015, Langley Environmental Partners Society (LEPS) began collecting once-monthly samples at twelve sites in the Canadian portions of the Fishtrap Creek watershed, including the Pepin Brook sub-basin. LEPS collected samples on dates coordinated with WA monthly ambient sampling. This LEPS sampling program concluded December 2018.

In June 2017, BC Ministry of Environment and Climate Change Strategy (ENV) began collecting water samples at fourteen sites on Cave Creek, Bertrand Creek, Fishtrap Creek and Pepin Brook. In January 2019, BC ENV added monitoring at several hotspot sites in the watershed that had been previously sampled by LEPS through December 2018. See Figure 1 for the WA, LEPS, and ENV monitoring stations locations.

BC and WA compared their water quality sampling methodologies and determined that the methods are generally consistent and can be used effectively to look at results in a coordinated manner. WA partners collect grab samples for fecal coliform analysis following standard methods and outlined in each individual agency's Quality Assurance Project Plans (or QAPPs; Ecology 2014, WSDA 2017, Whatcom 2017). BC collects discrete (or grab) water samples for fecal coliform and *Escherichia coli* (*E. coli*) in accordance with the *British Columbia Field Sampling Manual* (BC ENV 2013a) and the BC Ministry of Environment, Lands and Parks *Freshwater Biological Sampling Manual* (BC ENV 2013b).

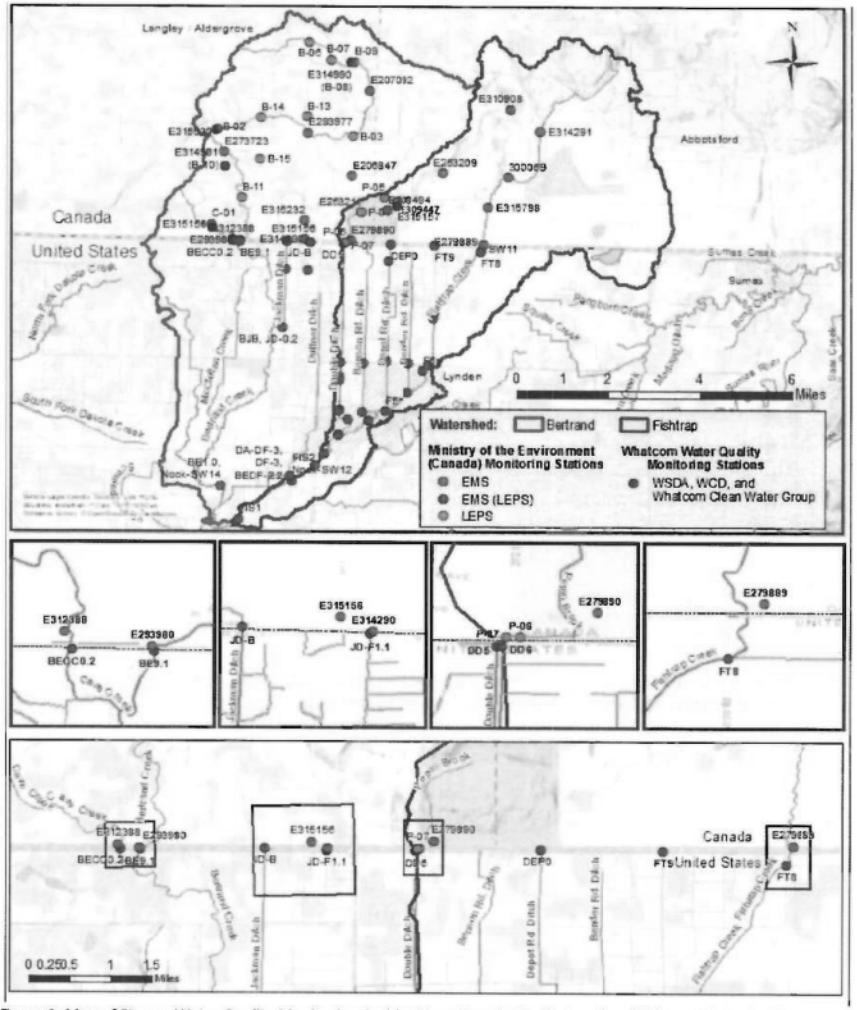


Figure 1: Map of Stream Water Quality Monitoring Ambient Locations in the Bertrand and Fishtrap Watersheds

Data from these sites can be found on WA's Surface Water Monitoring for Fecal Coliform Bacteria map or BC's Surface Water Monitoring Sites Interactive Map.

Ambient Water Quality Monitoring April 2018 to March 2019

Ambient sampling is routine sampling, pre-scheduled to occur typically weekly or monthly and is not dependent on weather conditions.

BC has fourteen ambient sampling locations including four border sampling locations on Cave Creek, Bertrand Creek, Pepin Brook and Fishtrap Creek. BC ENV samples ambient locations on a monthly basis and complements the monthly data with seasonal 5 consecutive weekly samples collected in 30 days (5 in 30) as required for comparison to BC water quality guidelines. BC also conducts source tracking sampling, which is discussed in the work plan implementation section.

BC's water quality data is available through the Surface Water Monitoring Sites web application. The web application provides the monitoring site name and description as well as direct links to the Environmental Monitoring Sites (EMS) web reporting where data can downloaded. BC's data can be accessed from this website: https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/tools-databases/surface-water-monitoring-sites

WA monitoring partners collect ambient samples at multiple locations within the Nooksack River watershed, including sites at the CA-US border (Figure 1). WA partners complement ambient sampling with storm event and source identification (source ID) sampling throughout the lower Nooksack River watershed, including Fishtrap and Bertrand creek sub-basins (discussed under storm event and source ID sampling section). WA ambient sampling relevant to transboundary collaboration includes:

- **Lower Nooksack watershed**: WA regularly samples 19 fixed location sites in the lower Nooksack River watershed twice monthly (http://www.co.whatcom.wa.us/2608/Routine-Monitoring-Results), including once on the day prior to monthly sampling for fecal coliform in the downstream marine water shellfish growing area of Portage Bay. (https://fortress.wa.gov/doh/oswpviewer/index.html)
- **Border sites:** From 2014 to 2016, WA sampled seven border locations monthly. In 2016 WA added border site FT9 and added DEP0 in 2018 as part of a larger, same-day ambient sampling run coordinated each month at fixed location sites throughout the lower Nooksack watershed

For this first reporting year, BC and WA did not combine data analysis due to data and sampling location challenges. While BC analyzes samples for *E. coli*, WA does not. Some border sampling sites monitored by BC and by WA differed in location, and may not be directly comparable.

BC *E. coli* 5 in 30 Sampling

BC *E. coli* data (Figure 2) show that the wet season geometric means meet the BC Primary Recreation guideline (200 CFU/100 mL) throughout the BC portion of the watersheds. This sampling was completed at locations that had historically higher *E. coli,* including one border site on Pepin Brook (E27890). BC added 5 in 30 day sampling at the four stream border sites and will report these results in the next annual report.

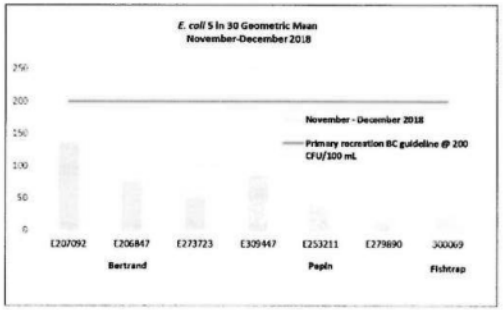


Figure 2. Wet season geometric means for *E. coli* at BC sampling locations for each tributary. The left to right order for each watershed reflects the order of the sites from upstream to downstream.

Border Sites Fecal Coliform by Year

BC and WA fecal coliform data from April 2018-March 2019 shows that annual geometric means for fecal coliforms (Figure 3a) are at or below the WA Primary Contact Recreation Criterion (100 CFU/100 mL) for Cave Creek, Bertrand Creek, Pepin Brook, and Fishtrap Creek. Annual geometric means show general improvement from the longer datasets (denoted as bars) at all sites except for site JD-F1.1:

- Site JD-F1.1 is located on a small tributary of Jackman Ditch and is the only site at which the geometric mean and estimated 90th has worsened in the past year compared to the past three years.
- Site JD-F1.1 is small in volume but continues to have bacteria counts far higher than those measured at other border sites.

Six of the nine border sites meet the WA criterion for fecal coliform estimated 90th percentile (200 CFU/ 100 mL) based on the last year of data (Figure 3b). This is an improvement compared to the three-year dataset, but means additional work is still needed to address seasonal and condition-specific high bacteria counts at these sites.

In general, higher concentrations are found upstream in these drainages. By the time the waterways reach the border sites, fecal bacteria concentrations are typically quite low. Overall, both BC and WA data show that the higher fecal coliform and *E. coli* concentrations typically take place during the wet season when soils are saturated or following significant rainfall events.

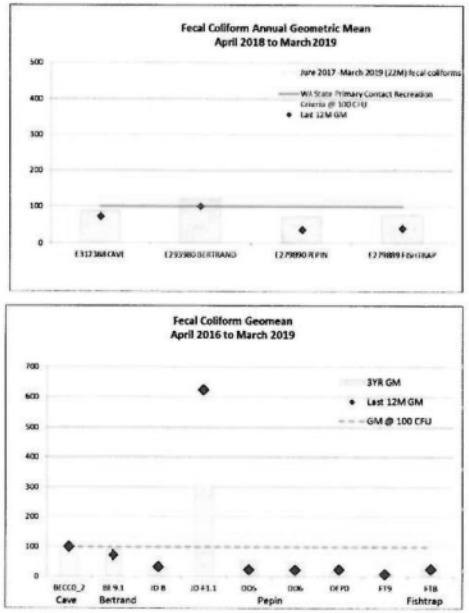


Figure 3a. Annual geometric means of fecal coliform at four border sites sampled by BC ENV (top) and nine border sites samples by WA partners (bottom) April 2018 through March 2019

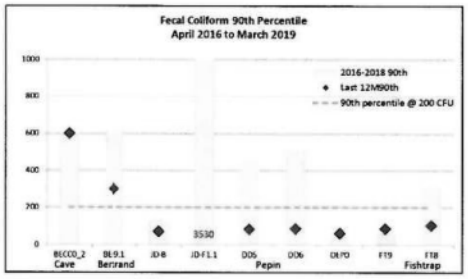


Figure 3b. Annual estimated 90th percentiles of fecal coliform at nine border sites sampled by WA partners April 2018 through March 2019

Border Site Seasonal Geometric Means

Seasonal geometric means for fecal coliform were calculated for BC and WA border sites on Cave Creek, Bertrand Creek, Pepin Brook, and Fishtrap Creek (Figure 4a). BC and WA datasets show similar patterns, but some differences.

The small dataset used for seasonal comparisons (3 to 12 samples taken at each site per season) make this analysis sensitive to specific sample dates and to individual high counts. Seasonal data is useful for comparing year to year, for identifying critical conditions and times of the year to focus bacteria reduction efforts, and for ensuring year-round sampling analysis does not mask periods of non-compliance. General conclusions for 2018-2019 seasonal fecal coliform data (Figure 4a) include:

- Cave Creek and Bertrand Creek each exceeded the WA Primary Contact Criterion for fecal coliforms in two or more seasons.
- Pepin Brook did not exceed the WA criterion for fecal coliforms in any season.
- Fishtrap Creek exceeded the WA criterion in the summer on the BC side of the border, but did not exceed for any seasons in WA.

For comparison purposes only, figure 4b displays seasonal *E. coli* geometric means in relation to the BC Primary Recreation guideline (200 CFU/100 mL), which is based on a geometric mean of 5 samples in 30 days. BC data show that Cave Creek *E. coli* was elevated in winter 2019; all other seasons at Cave Creek and all seasons at the other waterways were not elevated.

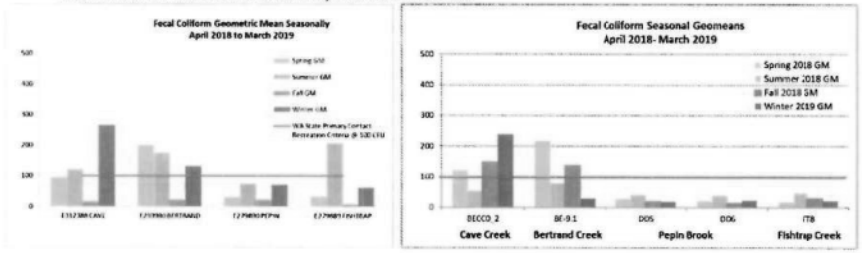


Figure 4a. Seasonal geometric means of fecal coliform at four border sites sampled by BC ENV (left) and at five border sites sampled by WA partners (right) April 2018 through March 2019

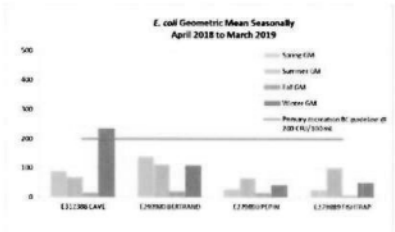


Figure 4b. Seasonal geometric means of *E. coli* at four border sites sampled by BC ENV April 2018 through March 2019

Nooksack River Tributaries and Mainstem

Fishtrap and Bertrand Creeks are the largest tributaries entering the Lower Nooksack River. The relative proportion of water that originates in BC in these two creeks varies seasonally and year to year. The *Lower Nooksack River Basin Bacteria Total Maximum Daily Load Evaluation* published in 2001 estimated that Fishtrap and Bertrand Creeks combined account for 44% of the annual fecal coliform bacteria load to the Lower Nooksack Basin. Hence, Fishtrap and Bertrand Creeks have been the focus of significant bacteria reduction efforts in the Nooksack watershed.

The furthest downstream monitoring stations in Fishtrap Creek (F1) and Bertrand Creek (B1) prior to entering the mainstem Nooksack River serve as "keystone" stations for the watersheds (Figure 5). Fecal coliform concentrations in these waterways have been declining since 2015. However, elevated counts in the Bertrand watershed over the past year (especially winter 2018-2019) have led to an increase in the annual geometric mean at B1.

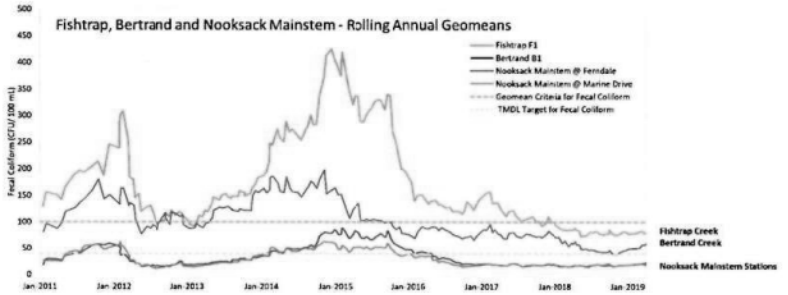


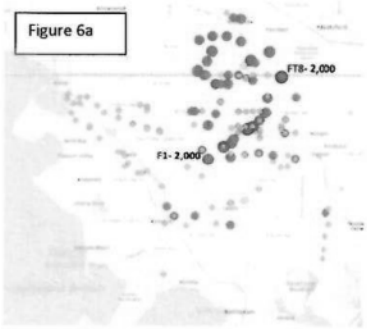
Figure 5. Rolling annual geometric means for the lowest downstream Fishtrap Creek (F1) and Bertrand Creek (B1) stations and two Lower Nooksack River mainstem stations. Sites are sampled twice monthly (n=24, with some minor exceptions).

Periodically during the wet season, coordinated ambient sampling in the Nooksack watershed captured instances where high fecal bacteria concentrations measured at CA-US border sites appear to travel through tributaries to the mainstem Nooksack River. The samples at the same locations would frequently be much lower the week before or after these occurrences. High concentrations were reported and responded to by BC ENV compliance staff as appropriate. Figures 6a and 6b offer two wet season examples of bacteria load transport through the system from the 2018-19 winter:

Screen shots from online data map showing preliminary results of fecal coliform bacteria analysis (colony forming units per 100 mL)

- *Red circles represent fecal bacteria concentrations above 500 fecal coliform per 100mL*
- *Green circles represent fecal bacteria concentrations below 100 fecal coliform per 100mL*

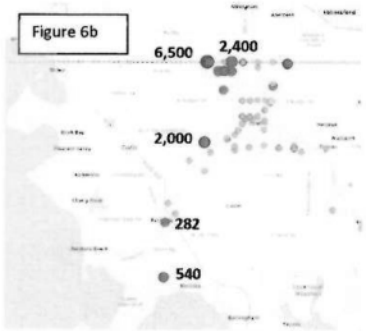
Figure 6a



Screenshot from online data map - December 11, 2018

- *2,000 CFU/ 100 mL was measured at Fishtrap Creek at Northwood Road just south of the CA-US border (FT8).*
- *2,000 CFU/100 mL was measured at F1. F1 is a downstream Fishtrap Creek monitoring site located before Fishtrap Creek enters the Nooksack River*
- *From FT8 south, high fecal bacteria counts were measured downstream in the Fishtrap Creek mainstem.*
- *In this example, data from field and roadside waterways draining WA areas systems show fecal bacteria concentrations generally below 100 (i.e. green circles)*

Figure 6b



Screenshot from online data map - January 7, 2019

- *6,500 CFU/ 100 mL was measured at Cave Creek at 0 Ave. (BECC0.2).*
- *2,400 CFU/ 100 mL was measured at Bertrand Creek at 0 Ave. (BE-9.1).*
- *2,000 CFU/ 100 mL was measured at B1. B1 is a downstream Bertrand Creek monitoring site located before Bertrand Creek enters the Nooksack River*
- *282 CFU/ 100 mL was measured at M2. M2 is located on the Nooksack River mainstem at Ferndale, WA.*
- *540 CFU/ 100 mL was measured at M1. M1 located on the Nooksack River at Marine Drive before the river enters the Lummi reservation boundaries and the marine system.*
- *Data from field and roadside waterways draining WA areas systems show fecal bacteria concentrations generally below 100 (i.e. green circles)*

Storm Event and Source Identification Sampling

WA uses storm event and source identification sampling to help characterize 'critical conditions' for the border sites. Critical conditions likely relate to seasonal and precipitation patterns as those components affect soil moisture levels, runoff conditions, stream flows, and bacteria loading. Critical conditions may differ among waterways due to size of the channel, soil types, land uses, potential bacteria pollution sources within the area drained by the waterway, and proximity to the source in time and distance.

In the past year, 55 source identification samples were taken at the 9 border sites. These samples are evaluated independently from the ambient dataset and are not used in the calculation of the geometric mean or estimated 90th percentile for any site.

BC adds discrete sampling at specific locations when additional information is needed to assist with confirming or identifying a potential source of elevated bacterial levels.

BC and WA carried out bacterial and microbial source tracking sampling projects during 2018-2019. Partners will report project results in the next annual report.

Portage Bay Shellfish Growing Area Monitoring

The Nooksack River is the largest source of freshwater to the Portage Bay shellfish growing area. Heavy or sustained rainfall (typically observed during the fall and winter) and substantial snowmelt (typically observed during the spring) increase the discharge of the Nooksack River to marine water. The interaction of the Nooksack River with Portage Bay is complex. The direction and extent of the river plume is influenced by river discharge volume as well as by wind and tidal conditions. High fecal coliform densities can be measured in Portage Bay when contaminated Nooksack River water enters the bay. Portions of the Portage Bay shellfish growing area are classified by the Washington State Department of Health as either Conditionally Approved or Approved as shown in Figure 7.

Washington State Department of Health (DOH) and Lummi Nation Natural Resources Department cooperate to collect once-monthly regulatory samples at Portage Bay sampling locations. DOH manages marine water sampling results accessible through an interactive Commercial Shellfish Map Viewer or summarized in shellfish growing area annual reports. DOH evaluates a 30-sample geometric mean and an estimated 90th percentile to determine compliance with marine water quality criteria for shellfish harvest (Figure 8).

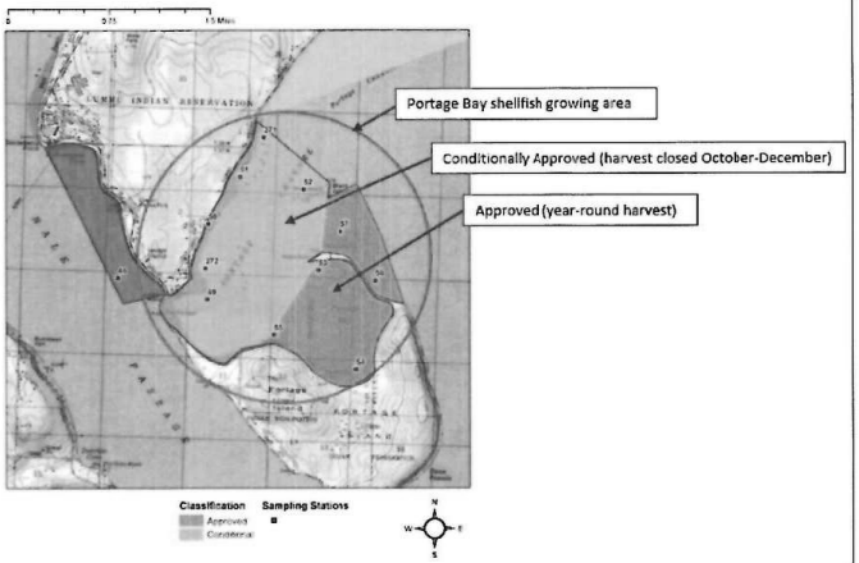


Figure 7: Map of Portage Bay shellfish growing area classifications as of March 2019

Spring Season Shellfish Harvest Recovery

In early 2019 after four years of closure, Washington State Department of Health (DOH) removed shellfish harvest restrictions for the April 1-June 30 spring season in the Conditionally Approved portion of the Portage Bay shellfish growing area (see Figure 7). A DOH January 2019 *Addendum to the 2009 Sanitary Survey Report of Portage Bay* (*2019 Addendum*) summarizes analysis of regulatory and special sample data confirming improved spring season water quality.

The *2019 Addendum* concludes:

- Based on improved marine water quality from April through June at stations in the Conditionally Approved area and multi-agency cleanup work in the Nooksack River watershed, all of the Conditionally Approved portion of the Portage Bay Growing Area is open to commercial shellfish harvest from April 1 through June 30 each year.
- The Conditionally Approved area remains closed to harvest from October 1 through December 31 each year due to continued poor water quality during these months.

Fall Season Water Quality Challenges

DOH's 2019 Addendum notes that all stations in the Conditionally Approved area meet National Shellfish Sanitation Program water quality standards when including the last 30 monthly samples. However, when data is sorted and analyzed seasonally, the geometric means fail to meet the standards when calculated with data collected during the three-month fall closed period.

The fall closed period geometric means were elevated when compared to the last 30 monthly samples and when compared to the open period only data. Because data from the fall closed period (October-December) shows elevated fecal coliform bacteria levels in the Conditionally Approved area during these months, the Conditionally Approved portion of the growing area remains closed to harvest during the October–December.

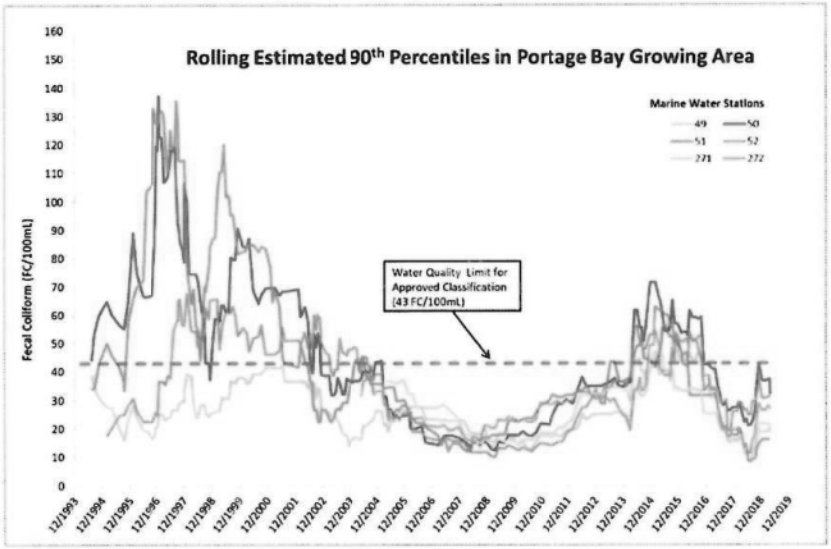


Figure 8. Estimated 90th percentiles for marine stations in the Conditionally Approved area of Portage Bay; 1993- March 2019.

Border Benchmark Recommendations and Initial Results

The TCG's Terms of Reference identifies deliverables for BC and WA to accomplish as joint actions. A key deliverable included setting a goal for fecal concentrations at water quality monitoring stations located at the CA-US border within the Nooksack watershed project area.

To meet the border goal deliverable, BC and WA TCG partners formed a subcommittee in October 2018 to begin reviewing data and developing alternatives. In June 2019 the subcommittee recommended the TCG consider adopting the following border benchmarks for 2-year and 5-year time periods using *E. coli* as the bacterial indicator:

- ***E. coli* of 200 CFU/100 mL** – Short-term border benchmark to be achieved at border stations over two-years
  - Benchmark is based on the geometric mean calculation of five weekly samples collected over 30 days (known as 5-in-30) and should apply to both wet and dry seasons
- ***E. coli* of 100 CFU/100 mL** – Longer-term border benchmark to be achieved at border stations within five years
  - Benchmark is based on the geometric mean calculation of 5-in-30 samples and should apply to both wet and dry seasons.
- The benchmark will be used at four border locations (i.e. the main waterways of Bertrand, Cave, Pepin and Fishtrap), with additional locations to be considered

BC and WA border benchmark subcommittee members support the border benchmarks as proposed. Members emphasize that the short- and long-term benchmarks reflect the intention of continued pollution reduction.

As the TCG steering members consider the proposed benchmark, subcommittee members will continue to evaluate the similarities and differences between BC and WA monitoring frequencies and compliance assessments. Continued communication will help determine how subcommittee members will measure progress toward the short- and long-term benchmarks. Continuing conversations include:

- understanding how each side uses different datasets (e.g. ambient, storm event, source identification) in producing charts and communicating statistics
- refining border sampling locations and who will monitor them
- determining how BC and WA can adapt their monitoring programs to further complement each other, including cost-effectiveness and usefulness of data

Sampling for comparison to the border benchmark, based on the BC Water Quality Guidelines (i.e., geometric mean calculations based on five samples collected within 30 days, "5-in-30 sampling") was not conducted for the reporting period at all border sites. 5 in 30 day sampling at the four stream border sites has been added to BC's sampling program and will be reported out in the next annual report.

For comparison purposes only, Figure 9 displays dry and wet season geometric means for six monthly samples in relation to the BC Guideline for Primary Recreation for *E. coli*. BC's guideline is based on a geometric mean of 5 samples in 30 days. *E. coli* results have been generally low at the border for the reporting period.

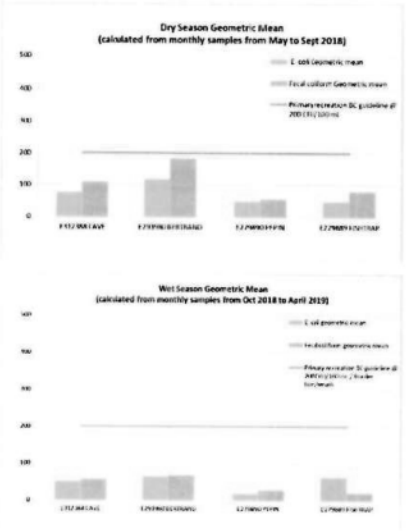


Figure 9. BC seasonal geometric means of fecal coliform and *E. coli* at four border sites sampled monthly by BC ENV from May through September 2018

Work Plan Implementation

The summary of activities is based on tasks in TCG Work Plan as recommended by the BC-WA Nooksack River Transboundary Water Quality Task Group. The TCG Work Plan identifies who was to be the lead (either WA or BC) or whether the task was to be a BC, WA joint initiative. This reporting covers the period of August 2018 to June 2019 as the TCG was established in August 2018.

BC
Joint = BC and WA
WA

Specific WA TCG Technical Member agency acronyms referred to in the activity summary include:

- Whatcom Clean Water Program (WCWP) - collective

State

- WA State Department of Agriculture (WSDA)
- WA State Department of Ecology (ECY)
- WA State Department of Health (DOH)

Local

- Whatcom Conservation District (WCD)
- Whatcom County Health Department (WCHD)
- Whatcom County Planning and Development Services (PDS)
- Whatcom County Public Works (WCPW)

Specific BC TCG Technical Member agency acronyms referred to in the activity summary include:

- Ministry of Environment and Climate Change Strategy (ENV)
- Ministry of Agriculture (AGRI)
- BC Agricultural Research and Development Corporation - Environmental Farm Plan (ARDCorp)

COMMUNICATION		
***TASK**: Periodic meetings or conference calls as necessary between BC management and Washington/local managers of the Pollution Identification and Correction program*		
Who	**Activities**	**Next Steps**
Joint	▪ Official TCG meetings: January and June 2019 o ENV and DOH co-chairs plan agendas, conduct meetings, track action items and follow up	▪ Continue twice yearly meetings
ENV	▪ Every 1 to 2 months BC team coordinate work plan meetings	▪ Continue meeting
WCWP	▪ Twice monthly field staff meetings; once monthly pollution identification and correction (PIC) program manager meeting	▪ Continue field staff meeting schedule

***TASK**: Increase non-regulatory engagement with the agricultural/rural residential community by participating in relevant events and forums. Take advantage of transboundary opportunities for outreach and promotional engagement at events in the Nooksack Watershed and Whatcom County*		
Joint	▪ No joint BC/WA TCG participation in transboundary outreach event with ag/rural residential community ▪ Formed outreach subcommittee to facilitate non-regulatory compliance promotion information exchange; shared online access to event schedules and farm planning and septic system education promotional materials ▪ Joint participation in April 2019 North Puget Sound Pollution Identification and Correction (PIC) program meeting focused on source tracking tools; ENV staff participated by phone; meeting took place in WA	▪ Continue to strengthen communication about opportunities for agency partners to participate in events during 2019-2020 where agricultural and rural residential residents will be in attendance ▪ Continue resource information exchange
AGRI	▪ Contributes to and oversees Environmental Farm Plan (EFP) program and supports EFP workshops. Continue to support EFP events and forums	▪ Continue to support EFP events and forums
ENV	▪ Participated in outreach events and forums. ▪ Met with agricultural associations to explain the new agricultural waste rules ▪ Participated in EFP workshop	▪ Continue to participate in events and forums with target audiences
WCWP	▪ Hosted and participated in agricultural land use-related forums including workshops, farm tours, and speaker series ▪ Hosted and participated in community events including annual fun run; Small Farm Expo; SeaFeast to promote clean water goals and fecal pollution reduction activities ▪ Participated in routine meetings with farmer representatives (North Lynden Watershed Improvement District (WID) and Bertrand WID) to share data and collaborate on landowner contacts ▪ Conducted social marketing campaign to encourage septic system evaluations ▪ Conducted homeowner training classes to support code-required septic system operation & maintenance actions ▪ Distributed septic system rebates for qualified evaluations and maintenance; shared information about regional loan program to assist with septic system repair and replacement	▪ Continue to promote clean water goals and availability of farm planning services ▪ Continue to promote septic system educational opportunities and encourage proper operation & maintenance actions
***TASK**: Expand Regional Operations Branch (ROB) Nooksack team. Invite non-ENV agencies to planning and work meetings*		
ENV	▪ Extended invitations to various local, federal and First Nation governments, provincial agencies and stakeholders, providing updates after every TCG meeting and when reports are posted	▪ Continue to share implementation progress

***TASK:** Continue managing and improving a shared database for multi-agency water quality data, including online results mapping*		
WCWP	▪ Improved and maintained multi-agency database and online data mapping capabilities through refining data submittal processes, ArcGIS layers, and collector apps ▪ Refined communication with laboratories to provide prompt online access to preliminary data for agencies to post to online map	▪ Continue supporting Data Coordinator position ▪ Continue multi-agency data team meetings to identify challenges and implement solutions
COMPLIANCE AND STEWARDSHIP		
***TASK:** Continue source identification and correction work (compliance inspections and compliance actions)*		
Who	**Activities**	**Next Steps**
Joint	▪ WCWP, led by WSDA, communicated to ENV high fecal bacteria results and/or visual observations of potential water quality concerns at border location sampling sites; ENV communicated plans and follow up results and inspected sites to determine sources of contamination. ▪ Communication resulted in source identification and/or plans for future monitoring	▪ Continue communicating amongst WA and ENV TCG members to share water quality observations and follow up actions, evaluate and adjust sampling program, identify and address hotspots, track progress, and refer water quality concerns to additional agencies as needed
ENV	▪ ENV completed follow up with previously inspected sites to determine compliance and escalated compliance responses when appropriate. ▪ ENV conducted new inspections at sites around fecal hotspot areas based on monitoring results to determine compliance and identify possible fecal bacteria sources. ▪ ENV conducted inspections to respond to complaints	▪ Continue to inspect in fecal hotspot areas and follow up on past non-compliance inspections
TASK: Set goal for reduced fecal coliform bacteria concentrations at border stations		
Joint	▪ Established short-term and longer-term border benchmarks to reflect the targeted fecal bacteria concentration reductions at border monitoring locations o Formed short-term data review workgroup as part of longer-term data subcommittee o Compiled and analyzed relevant datasets o Proposed *E. coli* as the fecal bacteria indicator o Short-term, two-year benchmark established: *E. coli* 200 CFU/100mL geometric mean; applicable both wet and dry seasons	▪ Evaluate water quality data and track annual and seasonal progress relative to the border benchmark

	o Long term, 5-year benchmark established: *E. coli* 100 CFU/100mL geometric mean; applicable both wet and dry seasons	
TASK: Promotional compliance project(s)		
ENV	▪ Contacted 69 agricultural associations about this watershed project and results of a compliance audit ▪ Ten associations agreed to publish compliance promotional articles in their respective provincial agricultural newsletters/websites/magazines ▪ Developed 11 compliance promotional factsheets for January 2019 agricultural event and presented on the new agricultural rules that took effect in February 2019 at event workshops	▪ Developing promotional materials and guidance for distribution
AGRI	▪ Developing On-Farm Composting Handbook to help small to medium operations and will post the handbook on the web this summer	▪ Post and promote On-Farm Composting Handbook
***TASK:** Environmental Farm Plan outreach and cost-sharing initiative in the Nooksack tributaries*		
AGRI ARDCorp	▪ Updated agencies and stakeholders in January 2019 on the Environmental Farm Plan (EFP) program in watershed ▪ Delivered EFP training and workshops in watershed	▪ Continue to deliver EFP outreach and cost-sharing initiative
***TASK:** Target implementation of AGRI's Manure Spreading Advisory/Application Risk Management tool in Nooksack tributaries; develop nutrient management planning calculator and communicate to users*		
AGRI	▪ Distributed manure spreading advisories in 2018 and now replacing advisories with the Application Risk Management tool (ARM), an adaptation of WA's tool ARM is developed specifically for an area of the province that includes the Nooksack watershed ▪ Developed, launched and posted nutrient management planning calculator on ENV and AGRI websites. Presenting calculator to agricultural associations	▪ Continue to promote nutrient management calculator and launch ARM
***TASK:** Riparian Health Framework project to explore monitoring protocols for riparian health*		
AGRI	▪ Adapted a tool to evaluate riparian health using an inventory process and launched first training session in October 2018 ▪ Preparing to deliver second training session to further adapt tool to BC	▪ Deliver second training session and pilot tool in the Bertrand Creek
***TASK:** Use a Living Lands/Discovery Farm approach to engage stakeholders*		
AGRI	▪ Agriculture and Agri-Food Canada is setting up a "Living Laboratories" initiative across Canada, and there was potential for applied research to be set up to address water quality issues in the Nooksack, but B.C. is not scheduled to have a Living Laboratory site until 2021	▪ See the recommendation to remove this item from the work plan

***TASK**: Continue farm planning and cost-share funding initiatives*		
WCWP	▪ WCWP partners referred agricultural properties with water quality concerns to WCD for technical assistance ▪ WCD promoted farm planning services and offered incentives through soil tests, tarps to cover manure piles, rebates for qualifying practices, and cost-share program ▪ Whatcom County Public Works coordinated landowner contacts and facilitated small farm rebate and cost-share program ▪ WCD worked with farmers to produce farm plans and put in place water quality protection practices; technical assistance included working with dairy producers and crop producers related to manure and facility management	▪ Continue supporting and pursuing funding to continue and expand farm planning services and ways to engage the agriculture community in clean water solutions
***TASK**: Continue educating and reaching out to landowners about clean water goals; offer technical assistance and financial incentives to reduce pollution risk and encourage cooperative compliance*		
WCWP	▪ Field staff and outreach workgroup developed focused messages for spring 2019 season; partner agencies promoted collective messages related to timing of allowing animals on pasture, use of the Manure Spreading Advisory tool, and proper cleaning up of pet waste ▪ Outreach venues and methods included printed materials, events, social media posts, pet waste kits, signage, radio ads, phone text alerts, and links to online resources such as water quality results map and story map [blue text are hyperlinks]	▪ Develop fall 2019 focused messages for partners to deliver based on each agency's program role and responsibility ▪ Continue multi-prong approaches to delivering coordinated messages
***TASK**: Collaborate to maintain and improve online water quality results and data communication*		
WCWP	▪ Continued multi-agency work to contribute monitoring data to online map ▪ Consistently made preliminary results available to the public via the online results map ▪ Provided relevant and timely content to the public via WSDA StoryMap ▪ Consistently created and posted monthly water quality summaries to the WCPW website	▪ Include DOH marine sampling results into online data mapping of preliminary results ▪ Include alerts for WSDA StoryMap in WCPW, WCD, and PDS newsletters
***TASK**: Maintain regulatory backstop programs, including relevant outreach/technical and financial assistance components; ~~collaborate to maintain and improve online water quality results and data communication~~*		
WCWP	▪ Recommendation to revise this task description to remove the crossed out phrase because it repeats wording from the task above <u>Dairy</u> ▪ Washington State Department of Agriculture (WSDA) Dairy Nutrient Management Program	▪ Continue routine inspections of dairy

	staff conducted routine compliance inspections at dairy facilities; reviewed records for compliance and offered technical assistance and/or referrals to WCD to improve or correct identified problems ▪ WSDA staff conducted investigations; pursued compliance actions related to water quality or record keeping violations ▪ WSDA staff responded to dairy-related water quality complaints; verified if valid; followed up with dairy producer <u>Non-dairy agriculture</u> ▪ Washington State Department of Ecology (ECY) Water Quality Program staff responded to complaints or field staff observations related to real or potential fecal bacteria pollution resulting in water quality violation; if verified valid water quality concern, followed up with property resident/landowner offering technical assistance and referral to WCD and using agency enforcement protocols ▪ Whatcom County Planning and Development Services (PDS) responded to complaints or field staff observations related to real or potential critical areas ordinance violations; if verified critical areas ordinance violation, followed up with property resident/landowner offering technical assistance and referral to WCD using agency enforcement protocols ▪ PDS carried out annual review of farm plan implementation to evaluate landowner compliance with Critical Areas Ordinance	facilities and dairy record-keeping documents and follow up on complaints and/or high bacteria counts related to dairy operations ▪ Continue regulatory backstop programs for non-dairy agriculture land use sources of fecal bacteria pollution ▪ Continue regulatory agency work with non-regulatory agencies offering technical assistance and rebate and cost-share opportunities to encourage implementation and maintenance of water quality protection practices
***TASK**: Continue assessing effectiveness of management practices*		
WCWP	▪ Recommendation to revise this task description to recognize that WCWP does not formally assess effectiveness of management practices as part of its current bacteria Pollution Identification and Correction (PIC) program ▪ Recommendation to revise this task description to better reflect intent for WA partners to identify and pursue effectiveness monitoring in a way that provides useful information in PIC program prioritized geographic areas	▪ Perform a "needs" assessment for effectiveness monitoring ▪ Based on assessment results, incorporate effectiveness monitoring into future implementation projects as resources allow
***TASK**: Continued administration of OSS compliance efforts; operations & maintenance program (regular system evaluations) including repair/replacement of failing systems; oversight of OSS design and installation; financial incentives*		
WCWP	▪ Whatcom County Health Department (WCHD) responded to complaints, water quality data,	▪ Continue OSS compliance efforts, including

	and field observations related to possible human waste sources of fecal bacteria pollution ▪ If human waste source identified, WCHD followed up using agency enforcement protocols ▪ WCHD administered Whatcom County's On-Site Sewage system (OSS) operation & maintenance (O&M) program including permitting, conducting homeowner OSS education classes, evaluating reports of system status, notifying landowners of OSS evaluation requirements, ensuring failing systems are repaired or replaced, and sharing information about rebates and regional loan program ▪ Whatcom County Public Works worked with WCHD to share information about rebates for OSS O&M actions and to distribute rebates	landowner contacts and follow-ups.
MONITORING		
***TASK:** Continue source identification sampling to identify fecal coliform sources*		
Who	**Activities**	**Next Steps**
Joint	▪ WA collected 55 total storm event samples at 9 border sites during the annual data reporting period (April 2018-March 2019) ▪ BC conducted additional targeted sampling based on unusual site conditions and/or information received about particular sites in the watershed ▪ BST/MST projects by BC and WA in these watersheds collected just over 100 source ID samples for environmental DNA analysis ▪ BC/WA communicate following high results at the border which can result in additional sampling	▪ Continue to consider source ID sampling data with field condition information to better characterize critical conditions and potential pollution sources ▪ BC will continue to coordinate and communicate internally with Compliance and Authorization departments ▪ WA to continue storm event sampling
***TASK:** Continue long- and short-term ambient sampling in freshwater and in shellfish growing areas*		
Joint	▪ BC and WA performed monthly ambient sampling throughout the annual data reporting period (April 2018-March 2019) ▪ Coordinated WA freshwater sampling in the Nooksack River watershed with monthly DOH and Lummi Natural Resources marine sampling in Portage Bay ▪ BC sampled monthly at 14 stations on Bertrand and Fishtrap Creeks and Pepin Brook, including 4 sites on the CA-US border ▪ BC and WA coordinated on same-day sampling on 15 events during the annual data reporting period ▪ BC completed two attainment sampling events (5-in-30) for establishing and tracking progress towards a border benchmark and evaluating	▪ Continue coordination of sampling dates for monthly ambient sampling (dates currently scheduled through December 2019) ▪ Data subcommittee will continue to evaluate trends in ambient data (twice annually) ▪ BC will continue its twice annual border benchmark attainment sampling on streams (5-in-30)

	seasonal trends in data, one sampling event is within the annual data reporting period ▪ BC and WA formed data subcommittee to coordinate monitoring, data sharing and collective analysis. ▪ BC and WA shared sampling plans and standard operating procedures ▪ Formed and maintained data subcommittee to coordinate monitoring, data sharing and collective analysis	
***TASK:** Microbial/bacterial source tracking project (BST/MST)*		
ENV	▪ BC collected 70 BST water samples and analyzed 36 for 16S and 13 for Shotgun, and collected 7 scat samples of different species ▪ BC has initiated communicating preliminary results to key partners through a presentation	▪ Evaluation of results for gap analysis and potential additional sampling ▪ Communicate final results to key partners for education and compliance promotion and audits
***TASK:** Research and evaluate usefulness of scurce tracking methodologies (e.g. microbial source tracking, metagenomics, ZAPS)*		
WCWP	▪ WCD/Exact Scientific Services conducted a microbial source tracking (MST) project scheduled for competion at end of July 2019. WCD is producing a project report. Water quality samples analyzed for the project included samples from three CA-US border water quality monitoring locations. ▪ WCD, DOH, Lummi Natural Resources, and the US Environmental Protection Agency maintained a research project bagun in 2017 evaluating use of ZAPS LiquID water quality monitoring equipment in the Nooksack watershed. WCD will produce a project report by end of 2019. ▪ Tested usefulness of a fluorometer for measuring optical brighteners during a three month period	▪ Continue exploring source ID tools and making use of tools determined to be helpful and cost effective ▪ Communicate final results to key partners and the public.

Conclusions

TCG members completed first year tasks outlined in the TCG work plan and met deliverables stated in the Terms of Reference. Highlights include:

- Establishing a three-year goal for fecal concentrations at project area CA-WA border locations.
- Forming data management, border benchmark, and non-regulatory outreach subcommittees.
- Meeting formally in January and July 2019.
- Coordinating water quality monitoring plans and evaluation of monitoring results.
- Acting on water quality complaints, including offering technical assistance and conducting regulatory compliance activities as appropriate.
- Hosting and/or participating in relevant non-regulatory engagement events and forums and distributing promotional materials through various media.
- Completing an evaluation of first year project work and an annual summary report
- Developing recommendations for adaptations to incorporate into following year work to improve effectiveness and efficiency

Overall 2018-2019 surface water quality monitoring results are positive. However, due to natural annual variability and limited data, it is too early to make conclusions about long term trends of *E. coli* at the border. The TCG will continue to implement work plan tasks in 2019-2020.

Recommendations

The TCG recommends the following adaptations to the work plan based on the first year of implementation:

Communication:

1. Identify an approved shared platform for BC and WA collaboration to produce joint documents such as annual reports.
2. Compile a list of online resources and related projects, including websites or document links and any open data to showcase the project's resource development and collaboration (e.g. flow or nutrient data; local and related research efforts; other transboundary collaboration efforts).

Compliance:

1. Change the Work Plan category title from "Compliance" to "Compliance and Stewardship" to acknowledge non-regulatory outreach, technical assistance, compliance promotion components.
2. BC task: Remove "Use a Living Lands/Discovery Farm approach to engage stakeholders," as BC is scheduled to access this federal initiative in 2021 and this project ends in 2021.
3. WA task: Remove this duplicative task captured in another item "collaborate to maintain and improve online water quality results and data communication" from longer task description of "Maintain regulatory backstop programs, including relevant outreach/technical and financial assistance components; ~~collaborate to maintain and improve online water quality results and data communication~~."
4. WA task: Change task description from "Continue assessing effectiveness of management practices" to "Evaluate needs for measuring effectiveness of management practices; incorporate identified effectiveness monitoring priorities into future practice implementation projects." This

task was originally misstated; WA's effectiveness monitoring is currently very limited but local partners are working to better integrate this type of monitoring into WA programs.

Monitoring:

1. Coordinate and prioritize sampling events by both jurisdictions to occur on the same day north and south of the border at least once-monthly.
2. Split a limited number of water samples for analysis at both BC and WA laboratories to determine inter-laboratory variability.
3. Conduct multi-agency same site duplicate or replicate samples to ensure comparable data.
4. Evaluate border sampling coordination between jurisdictions, including:
    a. Prioritizing sampling sites
    b. Statistically comparing datasets from geographically close BC and WA sites to determine if the site data can be used interchangeably
    c. Determining if any geographically close sites can be removed
    d. Identifying additional sites that should be monitored
    e. Include the required 5 in 30 day sampling at key seasons.
5. Gather additional hydrological information to better understand loading from Canadian portions of Bertrand and Fishtrap watersheds to downstream WA portions of Bertrand and Fishtrap Creeks and to the Mainstem Nooksack River.

Overarching addition:

The TCG annually reviews and updates the project's Terms of Reference, Work Plan and monitoring programs based on current circumstances.

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